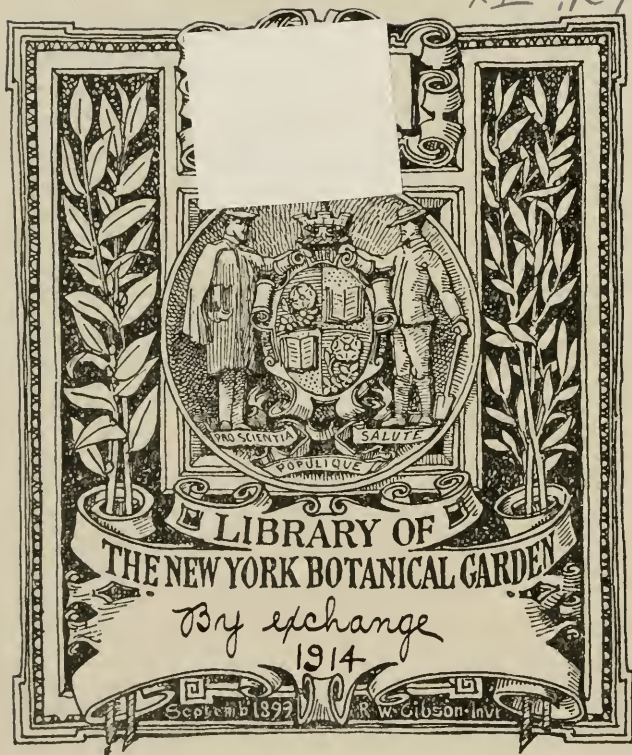




XI, R4





IRISH GARDENING

A MONTHLY JOURNAL DEVOTED TO THE
ADVANCEMENT OF HORTICULTURE AND
ARBORICULTURE IN IRELAND

VOL. IX.

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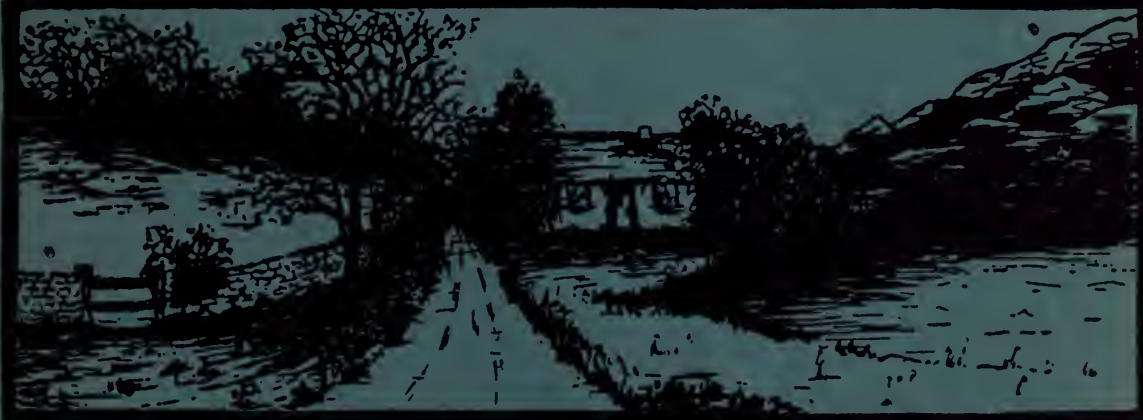
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Irish Gardening

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No. 95

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ADVANCEMENT OF HORTICULTURE AND
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JANUARY
1914

EDITED BY C. F. BALL.

The Herbaceous Border.

By J. W. BESANT.

THE revival in the cultivation of herbaceous plants during the last ten years or so has been not less remarkable than the wonderful enthusiasm displayed by lovers of Alpines. True, Alpines or those plants usually looked upon as such lend themselves more readily to cultivation in small gardens since a very fair collection may be grown in quite a small space, yet the herbaceous border has become a necessity in gardens of moderate size, and may be considered quite indispensable in large gardens and public parks.

This revival is due to several causes, chief among them being a greatly increased love of gardening, dissatisfaction with the bedding out system, which is costly, and the more permanent joys of herbaceous plants.

There are few positions where herbaceous plants of some kind may not be grown, and it is in their wonderful variety that the chief attraction lies. Quite a number may be grown in shady places, many are adapted for wild gardening, and in this latter connection it is doubtful if the possibilities of such things as Oriental Poppies, Asphodels, Lupins, Aquilegias, &c., for planting in grassy meadows has yet been fully realised.

The most brilliant effect, however, is obtained in the well cultivated border, the position carefully chosen, the work of preparation done thoroughly, and the subsequent selection and planting performed with judgment.

Although as stated above there are sorts adaptable enough for various positions, it is best where there is choice in the matter to form the border in an open sunny position away from the impoverishing influence of large trees, but if possible with some shelter from the prevailing direction of rough winds.

It is very desirable, however, that the border should have a good background, as nothing so much enhances the general appearance at all times, emphasising and throwing into relief, as it were, the various components.

Various means of achieving this end rise to mind. Should a wall happen to be in a suitable position it may be made beautiful with a choice

collection of climbing and trailing plants which will lead down naturally to the border and form a pleasing harmony with the herbaceous plants. An evergreen hedge of Yew or Holly is hardly inferior to the creeper-clad wall, the sombre hue of the hedge contrasting well with the bright colours in the border. In the same way a shrubbery may be made to serve as a background, and many good effects are obtained in this way. Where no background exists it is quite possible to make one of trellis work furnished with Roses, of which there are so many delightful kinds—Clematises, Honeysuckles and Vines. The latter plan of course involves some expense in providing the trellis, but the subsequent result will amply justify it. Lastly, there may be no immediate background to the border except, as in the illustration, that which is formed by tall, strong growing plants forming an irregular line along the back, and against which dwarfer kinds show up remarkably well.

An important point, where it can be managed, is to have a broad grass edging along the front, or, better still, allow the lawn to form the foreground of the picture. The fresh green colour of the grass plays as important a part in developing the beauty of the border as does a suitable background.

It is, perhaps, unnecessary in these enlightened days to labour the question of thorough preparation of the soil, but nothing less than two feet of rich material should satisfy those desirous of a fine and lasting display. To achieve this it is necessary to trench the ground, an operation which requires some judgment. To the writer's mind there is nothing like turning the soil upside down, but if the work is to be done in spring this is not advisable, as the plants have to be got in as soon as possible, and the subsoil has not had time to become aerated and suitable for the roots to make use of. Again, if the subsoil be stoney or gravelly, it is obviously useless to bring it to the surface, and the only way, in such circumstances, is to remove it to get sufficient depth; then, when passed through screens, the stones and gravel may be used on roads and walks. Well rotted manure,

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leaves, garden refuse and road scrapings may all be incorporated as the work of trenching proceeds, and each layer should be well trodden down to prevent, as much as possible, subsequent sinking. When the work of trenching is completed, the surface should be well firmed by tramping, and raked level.

The work of planting and planning a herbaceous border is one of the most fascinating a gardener is called upon to do, and requires a thorough knowledge of herbaceous plants and a great deal of forethought if a good display is to be maintained over the longest possible period. If a good selection of kinds is used the border should be gay from March to October. To achieve this it is clear that the earliest display must come from bulbs and other spring flowering plants, and it is equally obvious that these must be replaced later in the season with annuals, of which there are so many beautiful kinds.

Now, annuals are just as much herbaceous plants as are perennials, and so are bulbs, so that their use is quite permissible and even essential if the best results are desired. All the annuals required for the border, illustrated in this issue, are raised in nothing more than a cold frame, some being sown in autumn and others in February and March. It is found desirable to raise even hardy annuals in boxes, as there is much less risk in planting out sturdy young plants than in sowing in the open. Less seed is required, and when the bulbs are up it is much easier to judge just where to put groups of annuals, so as to fill out the space left by the bulbs when they lie down.

The earliest display of bulbs is got from Snowdrops, dwarf Seillas, Winter Aconite and Crocuses. These are followed by Daffodils in many varieties, and they in turn give place to Cottage and Darwin Tulips, which, flowering in May in gorgeous profusion, usher in the main summer display. In the case of the border illustrated, which is a portion of one of the long herbaceous borders at Glasnevin, the front portion has, in addition to bulbs, very many groups of other spring flowering plants, such as double *Arabis*, Yellow *Alyssum*, *Polyanthuses*, *Auriculas*, Pansies, *Violas*, *Forget-me-Nots*, and *Aubrietias* of several sorts. These make a fine setting for the bulbs, and being evergreen, give the border a furnished appearance even in winter.

Interspersed with the spring flowering plants just mentioned are groups of *Heucheras*, Pinks, Carnations and other summer flowers which come into bloom as the others go out, and keep the front of the border gay while the annuals, hardy and half-hardy which replace the *Arabis*, &c., are growing on for a late summer and autumn display.

The most of the bulbs in the borders at

Glasnevin remain in the ground from year to year, but any clumps showing signs of weakening are lifted and replaced in the summer with annuals, the space being planted in autumn again with stronger bulbs. In this way, without an annual lifting of all the bulbs, a good display is assured every spring.

Needless to say, the bulk of the display, taking the season through, is contributed by perennials, of which a large and comprehensive collection is grown. Although in the illustration there appears to be a background of trees, there are none in the immediate vicinity of the border. Tall strong-growing perennials, such as *Helianthus*, *Rudbeckias*, *Delphiniums*, *Michaelmas Daisies*, interspersed with groups of Sweet Peas, Hollyhocks, tall *Dahlias*, &c., form a background for plants of lesser stature. Not all the tall plants are kept to the back—some are allowed to extend to the middle of the border, while plants of from two to three feet reach quite to the front, and thus we get that billowy appearance which is so much more natural than the regular slope favoured by planters of earlier years. The middle of the border is furnished mainly with plants of medium height, such as *Irises*, *Pæonias*, *Lupins*, *Campanulas* of several kinds, *Pyrethrums*, *Chrysanthemum maximum* in several varieties, but nothing approaching straight lines of plants uniform in height is anywhere attempted. Likewise, no particular colour scheme is kept in view, though, as far as possible, colours which do not contrast or blend pleasingly are kept apart. This is fairly easy since spring, summer and autumn flowers are judiciously arranged to come in in their respective seasons, and so distributed as to give the maximum amount of colour from spring to autumn.

In planting, medium-sized groups are favoured rather than the two extremes of huge masses or single plants, but this, of course, must be regulated by the size of the border and the time when the chief display is required. It is best to so arrange the groups of early flowering perennials that later flowering kinds may be staked out to fill their place. This may be done by planting in narrow drifts—in fact it is wise to vary the shape of the groups throughout the border. It is also advisable to bear in mind the possibilities of coloured foliage plants, such as those with grey leaves. Among these we have *Veronica ineuna* and *V. candida*, *Nepeta Musini*, *Stachys lanata*, *Achillea clypeolata* and *A. ægyptiaca*, and many others, valuable not only for the colour effect of their foliage, but harmonising beautifully with pink or red *Pentstemons*, *Antirrhinums*, &c. Among golden-leaved plants *Veronica Trehane* is one of the prettiest.

It is a good plan where no grass edging is

available to have an irregular margin of stones, furnished with clumps of evergreen rock plants. Here many of the early spring flowers may be left to form a permanent edging, and will annually make a fine display, if cut over and attended to as the flowers go over. With regard to the cultivation of the perennials, subsequent to planting the border, much must be left to the judgment of the gardener.

Many strong-growing fibrous-rooted plants like the tall Michaelmas Daisies, Heleniums, Helianthus, &c., may with advantage be lifted and divided every autumn, others like Delphiniums, Eryngiums, Pæonias, Lupins, Irises,

ment of their shoots, but among the dwarfer things which are planted closer it is difficult to apply manure, and a compost of old potting soil, mixed with leaf-mould or old hotbed manure, is easier to point in, and effectively maintains the soil fertility, which must be kept at a high pitch. Basic slag is an excellent artificial for herbaceous borders, but it should be applied in autumn or very early spring. It is good on all soils, but especially for those deficient in lime. Superphosphate is more readily soluble, and it is excellent when applied in early spring to soils which have enough lime. It is an acid manure, and should be very carefully



THE HERBACEOUS BORDER AT GLASNEVIN.

and many others resent root disturbance, and are better left alone for several years. An all important operation too frequently neglected is the rigorous thinning out of weak shoots in spring. This is particularly desirable in the case of Delphiniums, but is equally applicable to Michaelmas Daisies and similar plants which may not have been moved. Half a dozen good strong shoots are infinitely more satisfactory than a forest of weak ones.

Where bulbs are largely used in the border the annual digging must be left till early spring, when they are pushing through the ground. Thoroughly rotted manure may be dug in between the groups of tall plants, which are planted further apart to allow for the develop-

ment of their shoots, but among the dwarfer things which are planted closer it is difficult to apply manure, and a compost of old potting soil, mixed with leaf-mould or old hotbed manure, is easier to point in, and effectively maintains the soil fertility, which must be kept at a high pitch. Basic slag is an excellent artificial for herbaceous borders, but it should be applied in autumn or very early spring. It is good on all soils, but especially for those deficient in lime. Superphosphate is more readily soluble, and it is excellent when applied in early spring to soils which have enough lime. It is an acid manure, and should be very carefully

used on heavy retentive soils deficient in lime. A final word may be said about staking, and we may take it as a safe rule that the less stakes we have in the border, compatible with safety, the better it will look. Some staking, however, must be done, and enough should be used to each plant or groups to allow of a natural appearance when the operation is complete. One or two stakes with a bundle of shoots tied up to them present an absurd picture, entirely spoiling the whole border. In large gardens this work should be entrusted to a trained gardener, as it is useless to expect an unskilled labourer to do it satisfactorily. In most gardens there are far too few trained gardeners and much too great a proportion of unskilled labour.

Apples for Profit.

By SIR F. W. MOORE, M.A.

READERS of IRISH GARDENING who are interested in fruit growing for profit must feel indebted to Mr. F. W. Hammond for the two interesting and practical articles which appeared in the November and December numbers of that periodical. As many growers are now ordering trees for planting and getting the ground prepared, a few criticisms and supplementary remarks may be useful. Mr. Hammond frankly states that he has not had much experience in Ireland, and adds that his remarks are "of a general character, and applicable to almost all localities." Nothing could be more practical and sound than the suggestions and directions as to soil, situation, preparation, cultivation, exposure, and selection of plants, and all growers can with advantage study these portions of the articles. During the past ten years a very extensive and practical series of experiments in fruit growing for profit by farmers have been conducted in Ireland by the Department of Agriculture, and some instructive lessons have been learnt, and carefully noted for future guidance. These experiments prove that local conditions have to be seriously considered, and that no general fixed regulations as to suitable varieties, nature of soil, and aspect of orchard can be accepted. In certain localities where every condition seemed suitable the prevalence of spring frosts has, year after year, done irreparable damage to the flowers, and ruined the prospect of a crop. The life of a bush apple on the Paradise stock is, I consider, generally under estimated, as is also the size to which the bush grows. There are instances of Bramley's Seedling, Blenheim Orange, and Bismarck on the Paradise stock, twenty-two years planted, which are in full health and vigour, and which are producing excellent crops of sound marketable fruit, quite as good as fruit from similar varieties of the same age on the crab, or free stock. Further, in many districts it has been found that apples on the Paradise stock, ten years planted, and now at their prime, which were planted 12 feet apart every way, are now interlaced, and some have to be cut out. These were not neglected plants, but plants which were carefully pruned and handled by skilled operators from the beginning up to the present date. In planting a permanent orchard I am convinced that better results will be obtained from planting the bushes 15 feet apart every way, and the half standards on crab or free stock 30 feet apart, the other disposition of the trees being as described by

Mr. Hammond. In no case of orchard planting should the bushes be only 10 feet apart. It is very difficult to induce a farmer to cut out a bush tree ten years old which is carrying better crops than a half standard, because it is injuring its neighbour, which is destined to be the permanent tree.

In the orchards originally planted under the supervision of the Department twelve varieties, including both eating and cooking apples, were put down, and it is now apparent, and well recognised, that this is at least six too many. Six, or at most eight, varieties are ample for any orchard. The difficulty is to ascertain which are the best varieties. At the conference held last October in connection with the fruit show some valuable information was given; and with the object of getting clear and definite information from as many districts of Ireland as possible, I requested practical men who were well acquainted with the fruit industry to send me a list of the best varieties for commercial work in their several districts. I asked them not to name varieties which gave good results only in small private gardens, or walled in highly protected enclosures, but to name the varieties not exceeding six which succeeded in ordinary orchards. Twenty-two have so far responded to my request from all parts of Ireland—Donegal to Kerry, Galway to Dublin—and I append the list of names sent in, with the number of votes given to each variety:—

COOKING APPLES.	Votes
Bramley's Seedling . . .	22
Lane's Prince Albert . . .	21
Grenadier . . .	21
Early Victoria . . .	15
Lord Derby . . .	13
Newton Wonder . . .	12
Bismarck . . .	6
Lord Grosvenor . . .	5
Jubilee . . .	3
Ecklinville . . .	3
Mère de Menage . . .	2
Hawthornden . . .	1
Stirling Castle . . .	1
Lady Henniker . . .	1
Domino . . .	1
Tower of Glamis . . .	1
The Queen . . .	1
Golden Spire . . .	1

DESSERT APPLES	Votes
Beauty of Bath . . .	21
Worcester Pearmain . . .	21
Allington . . .	16
James Grieve . . .	3
Gladstone . . .	2
Charles Ross . . .	2
King of Pippins . . .	2
Cox's Orange Pippin . . .	2
American Mother . . .	1
Lady Sudeley . . .	1
Blenheim Orange . . .	1

Of the varieties named by Mr. Hammond, Stirling Castle, Pott's Seedling, Warner's King, Wellington, in five cases out of six have been distinct failures for orchard work in Ireland, although all four are admittedly excellent apples. Lady Sudeley and King of Pippins have not been generally successful, and Cox's Orange Pippin has totally failed in all cold or exposed situations. Out of 150 separate orchards in Ireland this variety has only been a success in about twenty-five. Where, however, it does succeed it is without a rival for quality, or as a profitable variety. Langley Pippin and James Grieve, as early and mid-season varieties, promise to give better results, but neither has as yet been fully tested. All things considered, intending planters may safely take the voting as given above as a safe and reliable guide as to the varieties to plant.

Further, attention must be given to the necessity of not planting all the orchard with one variety only. Cross pollination is now known to be essential for some varieties, and beneficial for almost all. If four cooking and two dessert varieties be planted, not necessarily in equal numbers of each variety, the result will probably be satisfactory. As regards sprays and spraying, the simpler the nature of the sprays recommended, and the easier they are to prepare at home, the more likely they are to be generally used by farmers and market growers. For winter spraying when the leaves are off the trees, sulphate of copper (Bluestone), 1 lb. to 20 gallons of water, as a remedy for scab and spot cannot be beaten, and the ordinary Soda Caustic Wash, 2 lbs. Caustic Soda to 10 gallons of water, to be used warm, has no rival as a cleansing wash. For summer spraying against insects, Quassia and Arsenate of Lead are the simplest and best.



A TIP FOR IRISH GARDENING.

To make a rock garden where there is no specially suitable place—viz., to use the frontage of the kitchen garden paths where there is usually an herbaceous border, substitute for the box edging, which encourages slugs, the tiles which look stiff and ugly, or the grass edging on which everybody walks and which gets trodden down and spoilt, and on which the mowing machine breaks and spoils the herbaceous stuff—a roughly squared rockery border, which is all frontage, so that all plants can be easily seen. This has proved a great success at Aldenham, and is generally admired, and would if adopted enable many people with small gardens to show rock plants who could not otherwise do so. It looks well even in midwinter, and where there is stone handy would not be an expensive job.—From the HON. VICARY GIBBS.

The Pruning of Hardy Fruit Trees.

By ALFRED BARKER, Gardener to Lady Fitzgerald, Carrigoran, Newmarket-on-Fergus, Co. Clare.

Broadly speaking, there is no great divergence of opinion amongst gardeners and fruit growers as to the absolute necessity for pruning or as to the manner in which it may be carried out, though it is by no means novel to hear the assertion that "You shouldn't be so free with the knife," or when once the trees are a couple of years grown no pruning is required. I maintain that this is an absolute fallacy, and no matter how suitable the soil or how favourable climatic conditions may prevail, if you leave fruits of any kind unpruned, or leave them to unrestricted growth, then any or all of them will grow headlong to a state of complete unfruitfulness or produce fruit of such poor quality as to be almost useless; and especially is this the case with the much-debated apple. The apple is probably the most widely grown and most valuable of all the hardy fruits, both as food product and from a financial point of view, and considering the great difference of opinion offered in recent debates, &c., on this point, I may be pardoned for here expressing my own opinion, that a well managed (including well pruned) plantation of apples (and pears) is in itself, or, as an adjunct to farming, a highly profitable investment.

In orchards, apple trees are almost invariably grown as bushes, standards, and half-standards; any of these require little pruning the first year of planting, those that are planted in November and December, having made sufficient growth to need pruning, should in the following late February and March have the weakly and cross growths cut away, also any side shoots on the main branches cut back to four or five buds. The leading shoots (past summer's growths) may be shortened to half their length (not more), being careful to cut these growths at a bud pointing in the direction it is desired that the main branch should grow; in drooping branches cut to a bud on upper side of branch to induce more upright growth. Trees planted, say, after Christmas should not be pruned at all until the following season. In gardens devoted to the growth of a great variety of crops, and in most cases surrounded by walls, we find greater variety in the shape of trees—i.e., Cordons upright and oblique, horizontal and fan-trained trees, espaliers and pyramid trees, with others more or less fancifully trained. Whatever form the trees are to be trained in, the actual pruning is very similar in all cases. The principal exceptions are espalier trained trees, by the side of walks, and horizontal trained trees on walls, these trees being furnished with a centre stem from which side branches are trained horizontally. The leader or centre growth must be trained quite upright, and annually cut back to 12 or 11 inches from the last formed row of branches, several shoots will be produced at this point; as they grow, the centre one must be trained upright, and the most suitable side shoots trained one to the right and one to the left, to form another row of branches, proceeding thus until the required number of rows or tiers of branches are produced. At the

annual winter pruning of the side branches, all the lateral growths must be cut back to three or four buds, the leading shoot at the end of branch must be cut according to its strength, at from one-third to half its length, and trained horizontally, and so on until the branches have filled their allotted space: subsequently fruiting spurs will be formed the whole length of branches: these, when grown too long, or overcrowded, may be thinned more or less in alternate years, or annually, leaving two or three inches of base to produce shoots, which will by annual pruning again form fruiting spurs: weakly spurs may be cut away completely.

Fan-trained trees may be pruned in the same manner, the desired branches in this form being trained from the upper side of preceding branches. Well trained and fruited pyramid trees are, no doubt, highly ornamental, but, being comparatively unproductive and requiring a considerable amount of tying or training, this form of tree is seldom met with: when desired, pyramidal trees may be formed by tying the centre stem to a bamboo cane or other durable stake for training upright: train the side branches laterally and evenly all round from centre, until desired size of tree is obtained, the branches to be spurred and pruned as in bush trees, but cut the leading shoots somewhat shorter: always cut leading shoots to a bud pointing outwards.

Cordon trees may be grown as upright. Cordons on single stems and on double stems, trained more or less obliquely against walls or wire fences; they are also trained horizontally by the side of walks: in whatever way these may be trained, the pruning is in all cases similar, and consists in cutting the side shoots to three or four buds to form fruiting spurs, the leading shoots to be shortened to about half their length at the winter pruning. With all these formally trained trees, summer pruning should be carried out, the side shoots to be pruned back to three or four buds not earlier than the end of July and in August, the leading shoots being allowed to grow their full length and shortened at the winter pruning.

Earlier pruning of side shoots causes secondary growths most prejudicial to the trees, and these secondary growths should be pulled out after making two or three leaves. This manner of pruning applies equally to apples, pears, dessert cherries and plums, though plums should not be so closely spurred as the other fruits. Morello cherries are produced on the current year's growths, and a suitable number of these should be tied in to bear the crop in following

summer: surplus shoots should be cut clean out.

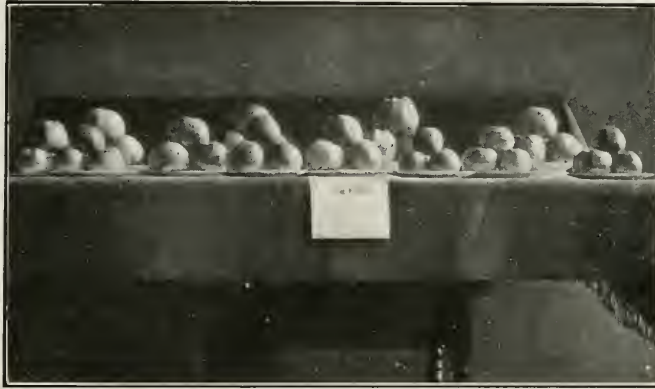
Lifting or root pruning must be resorted to in all cases where trees are making an undue amount of gross growths and proving unfruitful.

It frequently happens that fruit trees a few years planted, from various causes, break away into excessive wood growth, and produce little or no fruit: in such cases the trees should be lifted, more or less root pruned, and replanted in the same position again: shorten all thick fibreless roots to within twelve or fourteen inches of main stem tree, trim all jagged ends off other roots, spreading them out carefully in the course of replanting, taking care that the roots are arranged horizontally and having no downward tendency. This operation will effectually check excessive growth, and cause the trees to at once become fruitful. Trees may be quite safely lifted up to ten or twelve years of age. Older and larger trees must be root pruned, operating on one side of the tree in autumn as the leaves change colour, and taking

the other side of the tree the following season: in this operation cut away all thick fibreless roots found in the trench, others may be slightly shortened and preserved, to be laid in the trench when refilling: take this opportunity to add some well rotted manure or new compost as the trench is refilled, making the ground very firm by trampling as the refilling of trench proceeds.

Standard trees should not be

lifted or even severely root pruned at any time, as this would render them liable to be blown over by gales. Root pruning is a very important matter in the successful cultivation of the larger fruits, among young orchard trees, and frequently large old trees may be induced to bear satisfactory crops of fruit where previously only carrying crops of small scabby fruit. I have also seen many cases where root pruning alone has produced a very marked diminution of scabby apples and pears, as well as considerable improvement in size of fruit, on trees which many growers might be inclined to destroy. No doubt many trees owing to neglect of, or improper pruning, great age, &c., attain to such a condition that pruning of any description will not restore them sufficiently to produce crops of serviceable fruit, but it seems synonymous with "losing a sheep for a haporth of tar" to cut down trees large enough to produce ten or twelve bushels of apples, to be replaced by young trees that in many cases might not produce a bushel of apples in half a dozen years, while the large trees could by a course of branch and root pruning be given a new lease of fertility.



A COLLECTION OF 12 VARIETIES OF APPLES.
Grown by Mr. A. Barker, which received First Prize and Gold Medal at the last Dublin Fruit Show.

We have very old trees in the gardens here bearing almost annually splendid crops of fruit (some producing fruit fit for exhibition) which when I took charge of them, though being in a deplorable condition between fungoid and insect pests, neglect of and improper pruning, I had no authority to destroy so I attacked the tops with saw and secateurs and root pruned them; this, with subsequent liberal treatment, spraying, &c., restored them in a most satisfactory manner: many must be well over half a century old, but they still appear fit to bear profitable crops for many years to come.

Reverting to Bush and Standard trees which I left at the commencement of my remarks. For these I strongly advocate a system of extension, pruning annually, limiting the number of main branches and growing them sufficiently far apart to allow of light and sun having free access to all parts of the trees, especially when they have attained a good height and size. Whatever number of main branches the tree may commence with, prune away all side shoots, cutting to three or four buds, and cut back the leading shoot to from a third to half its length, being always careful to cut to a bud tending to produce a shoot to grow in the desired direction. With pendulous growing varieties chose the most erect growing shoots to form leading branches, and cut any pendulous shoots to a bud on upper side of shoot. The future good shape and fruitfulness of the tree depends in a great measure on the proper annual pruning of the leading shoots: the pruner must be guided here by the way in which fruiting spurs are being formed, and by the variation in strength of main branches in different varieties. Comparatively weak growers must be pruned shorter than the strong erect growing varieties or the resultant branches will become deformed when carrying heavy crops of fruit, or need supporting to keep them erect and prevent breaking of branches. Some varieties also need to have leading shoots pruned more severely, to cause more fruit spurs to form. As the trees attain height, suitable side shoots must be selected to form further main branches as necessary to increase size of tree, and later on other side

shoots must be selected to grow into main branches, with a view to their taking the place of older branches which may be sawn out on attaining an inconvenient height. In case of fruiting spurs becoming overcrowded or too long, they may be shortened or cut away altogether; weakly ones are always better cut out completely. This system of pruning will give most excellent results, the vitality and fruitfulness of trees will be maintained many years beyond that of trees left unpruned altogether, or pruned in an unsystematic manner, and the fruit will be of a very superior quality, even though in some cases the bulk of crop may not be so great.

The apple tree illustrated has been pruned in the manner described, since I planted it twenty years ago: it was then seven years old: it has been only once lifted, and not root pruned since the lifting: two years ago it produced three and

a half hundredweight of apples, and looks fit to continue fruiting for the next twenty years or more, being very robust and perfectly free from any disease. It is a Peasgood's Nonsuch, and I believe the fruit from this tree has won prizes at fruit shows in all parts of Ireland that will compare very favourably with any tree of this variety extant. We also have many trees



A WELL-PRUNED APPLE TREE—PEASGOOD'S NONSUCH.

of same age even better shaped, and annually carrying heavy crops, notably one that last year yielded over £3 worth of fruit (an acre or more of such trees would form a profitable asset in any plantation or farm holding). This tree has never been lifted or root pruned since it was planted.

The collection of apples illustrated are also the produce of trees pruned in the manner described. Size has been obtained by liberal manuring, and colour by the fullest exposure to sun and light.

Our shallow top soil is moderately good for fruit growing, our subsoil is very bad, and we have a very small number of trees of each variety to select from (in many cases only one tree), this being the case, and the character of Carrigoran apples being so well vindicated at various fruit shows for many years past, I may confidently claim as a strong recommendation for the manner, of pruning described.

Chrysanthemum Propagation.

By D. McINTOSH, Gardener to Alderman Bewley, Danum, Rathgar.

No flowers are more highly esteemed during the autumn and winter months than those of the Chrysanthemum. From start to finish throughout their period of growth it is very important that they should be grown on slowly, cool, and steadily, without the slightest check. In the first place, it is the duty of the cultivator to see that solid sturdy cuttings have been prepared for insertion.

If the best results are to be achieved, it is well to have one or two plants of each variety cut over as early as possible after the flowers have fully expanded. These pots should then be set up in a position near the glass, where they will receive plenty of light and air. Any that have an overabundance of suckers should be well thinned, cutting out those that are soft and spindly. The next important item is the preparation of the soil in which the cuttings are to be rooted. The best for this purpose is good old fibrous loam—that which has been stacked for several months. When in a suitably dry condition rub it through a $\frac{1}{2}$ -inch sieve and retain the fibry material for drainage. To every two parts of loam add one part leaf-mould and one part silver or river sand with a sprinkling of wood ashes. Mix the whole together thoroughly. Thumb pots are the best receptacles for the cuttings. If these have been thoroughly washed and dried, place a little fibry material at the bottom of the pots to act as drainage, and then fill up to the rim with the prepared compost, pressing it down gently as the work proceeds. Cover the surface of each pot with a good sprinkling of sand. The next job will be to look round for those cuttings which are ready for taking off. The inexperienced are apt to jump at a big thick sucker. Believe me it is not the treasure it looks. What should be the aim of the cultivator is to select medium sized cuttings, more solid and wiry than otherwise, about three inches long. Remove the two bottom leaves, make a clean cut immediately underneath the joint and the cutting is ready for insertion. If any trace of green or black fly is present, dip the cuttings in a solution of soft soap and water. With a smooth round dibble make a hole in the centre of the pot, carrying with it some of the sand previously laid on, insert the cutting and press the soil firm against its base. Finish off by making the soil firm all round with the blunt end of the dibble. Label each cutting, water them well in with a fine rose, and allow them to stand on the bench for an hour or so. For reference, it is a good plan to have a smooth board hung up in the potting shed, containing a list of the varieties to be grown. It may be marked off in the following manner:—

No.	Name of Variety	No. of Cuttings inserted	No. potted into 3 in. pots	No. potted into 6 in. pots	No. potted into 9 in. pots
1	A. T. Miller	IIIIII	IIIIII	IIII	III
2	Her Majesty	IIIIII	IIII	III	II

It can thus be seen at a glance what cuttings have been inserted and how many plants have been potted on.

Boxes with sheets of glass laid over the top make ideal rooting enclosures. Place one inch of fine cinder ashes at the bottom of the box so as to have a moist drainage underneath the pots. Keep the temperature at 45° by night and 50° by day. On no account must fire heat be used unless absolutely necessary in the event of a sharp frost. The glass should be lifted off for an hour or so every day and set back to dry. Very little water will be required before the plants are rooted. If they have a tendency to flag at any time a slight spraying will be sufficient to freshen the leaves. As soon as signs of rooting are shown, tilt the glass a little higher every day, until it can be removed altogether, gradually inuring the plants to the atmosphere of the house. In a few days they can then be lifted out and stood on a staging laid with ashes, and as near to the glass as possible. The more light and air the plants get the more stocky will be their growth. While the plants are in thumb pots careful watch must be kept that none of them become dry. The roots are so fine that they are easily injured.

Winter-flowering Begonias and their Culture.

FEW plants during the last decade have made such rapid strides in public favour as these Begonias. They are the result of intercrossing the pink and winter-flowering *B. socotrana* with the tuberous-rooting varieties that are so highly prized for summer bedding and greenhouse decoration.

To Messrs. Veitch, Chelsea, and Messrs. Clibran, of Altrincham, is due the credit of bringing out these beautiful subjects. The first one to be sent out by the former firm was named John Heal, a bright rose-carmine; other single varieties are Mrs. Heal, brilliant rose-carmine, and Ideala. Among the semi-double kinds are Elatior, Ensign, Julius, Winter Cheer and Winter Perfection, which are for the most part carmine or rose-pink. Messrs. Veitch's newer varieties embrace Fascination, bright orange-salmon; Exquisite, pink and white; Emita, deep orange; Optima, salmon-orange; and Her Majesty, a charming salmon-yellow.

In Messrs. Clibran's catalogue will be found a number of new sorts now offered for the first time. Many have received awards of merit from the Royal Horticultural Society, Vincent Square, during the last year or so. They embrace Scarlet Beauty, Splendour, reddish scarlet; Eclipse, salmon-scarlet; Lucy Clibran, bright salmon-pink suffused with orange in centre; Clibran's Crimson; Clibran's Scarlet; Display, a striking novelty, with rich deep salmon flowers; Altrincham Pink; Apricot, orange-apricot, suffused with pink; Mr. T. H. Cook, a lovely shade of rose-pink; and a host of other good things could be quoted if space permitted.

These charming Begonias produce a wealth of blossoms from October till the end of January, and are almost indispensable where a bright show of flower is required. For a long time the dominant colour was rose-pink or carmine, but now we have some glorious shades of orange-

scarlet and crimson, and it is only a question of time before we shall have all the beautiful tints seen in the tuberous-rooted section reproduced in the group now under notice. At one time the culture of these Begonias was considered extremely difficult, but to-day their requirements are more fully understood.

After the flowering period is over, the plants rest until the end of March, but they are not dried off altogether, as they do not form tubers.

It is a kind of compromise, which has been described as a thickened root-stock, and when giving water during the season of repose this important fact should be borne in mind. The best plan is to give just enough water to keep the stems and leaves from falling, while if too much is applied, the plants will decay. About the end of March or early in April growth commences, and the temperature should fluctuate between 60° and 65° F., and the atmosphere ought to be kept moist.

When the shoots are about three inches in length cuttings may be taken.

Place each one into a small thumb pot, and then arrange them in the propagating frame or a hand light, with the temperature about 70° F. Pot them on as they fill their receptacles with roots, and they will make nice flowering examples the following winter. For full sized plants, pots from six to seven inches in diameter will be ample, and they should be filled one-fourth of their depth with drainage.

A suitable compost consists of good fibrous loam three parts, and one part leaf-mould, with a sprinkling of sharp sand. If the loam is of poor quality a little well decayed manure or some reliable fertilizer may be added with advantage. During the growing season the temperature should

vary between 60° and 70° F., giving a little ventilation when the elements permit: keep a buoyant atmosphere by occasionally syringing between the pots, but never spray the plants overhead, while shade will be necessary during hot bright weather.

The two pests to guard against are thrips and a small mite which attacks the under surface of the leaves, but these can be kept down by fumigation.—SOUTHERNER.



Photo]

[Clibran's

CLIBRAN'S PINK.

One of the new Winter-flowering Begonias, with bright pink flowers 3 inches across.

TWO FINE CYPRIPEDIUMS —Cypripediums are very often grown in places where there is no attempt made to cultivate other orchids, and this is probably due to the fact that they are of easy culture, and flower during the dull period of the year. The two we especially recommend are varieties of the old C. insigne—viz., Sandera and Harfield Hall. The former is the finest of the yellow section, being a beautiful primrose yellow, except the upper half of the dorsal sepal, which is pure white. The latter variety is also the best among the spotted kind. It is a grand bold flower,

the dorsal sepal being heavily spotted with chocolate-purple, and broadly margined with white. The rest of the bloom is yellowish green suffused with rich brown. An intermediate temperature is most suitable, and the atmosphere should be kept fairly moist during the summer months. The repotting ought to be done soon after the flowers are removed, using a mixture of loam, partly decayed oak leaves, peat, and sphagnum moss in equal parts. Ordinary flower pots are chosen and filled one-third of their depths with drainage. After the repotting care must be taken not to over water the plants or the roots will soon decay.

T. W. B.

Hints to Beginners.

By M. CROSBIE.

CONSIDERING the fine weather that has been general during November and December, all winter work ought to be well ahead, and it is to be hoped it is so, as for the amateur in particular January is not a nice month for outdoor work. The soil is usually wet and cold, and the sleet showers and north winds which prevail are not pleasant. But when alterations have been done the regular work gets behindhand. In this case digging, trenching, and pruning of fruit trees of all descriptions should be hurried on whenever weather permits, as all ought to be completed by end of the month. Borders that want remaking can be done now. First, lift out all the plants and heel them in; trench the border at least two feet deep, adding manure, road-scrapings or wood ashes. Leave the border to settle for a few weeks before replanting. Divide any clumps of herbaceous stuff that may have got too big, using the outside pieces of the clumps for replanting.

Any new shrubs or Roses that have still to be planted, or any moving of old ones, ought to be done this month whenever weather conditions are favourable. Any Roses, shrubs, or other plants that arrive when the soil is too wet to plant, or in hard frost, are much better left for a few days packed as they come from the nursery, and placed in a shed where the frost cannot get at them. When unpacking, if roots of Roses or shrubs are found to be very dry, it is a good plan to soak them in a puddle of clay and water for a few hours before planting; and any torn or jagged roots should be cut clean with a sharp knife. If the soil is heavy, some fine dry soil (old potting stuff, wood ashes for instance) should be worked in between the roots. The earth mark on stems, which shows the depth which they were in the ground before, will be a guide for depth of present planting. Tread soil firmly and put a stake to all shrubs, being particularly careful with those that are evergreen, as, of course, the wind has much more effect on them. Care must be taken that the tying is loose enough to permit of the stem swelling. The tying material ought first be firmly tied to the stake and then given a loose twist before knotting round stem of plant. Even when well staked, newly planted shrubs sometimes get loose in high wind, so that it is well to look at the tyings occasionally until the roots are well established. But all care at planting time is thrown away unless the ground they are put in has been well prepared. For Roses or shrubs the ground ought to be trenched, adding manure, leaf-mould, &c. After trenching it would want nearly a month to sink and settle before planting.

Wallflowers ought to be looked over now and again, as unless they are in a very sheltered position, high wind tends to loosen them in the soil, and then they whirl round and round with every wind that blows, with very bad results to the plants. The surface soil round them should be lightly forked over and then the soil well firmed round the base of each stem.

If not already done, plans for summer bedding ought to be made. The best plan, of course, is to take notes in the summer of any new plants or good combination of colour (seen in or suggested by other gardens) that strike one as suitable for one's own garden the following summer. Seed catalogues are sent out this month, and where the notes were made last summer, ordering

seeds is very little trouble. It is as well to order seeds required as early as possible, so as to be sure of getting the varieties one wants. It is as well to remember too that in seeds, as in everything else, it is far more satisfactory and cheaper in the end to get them from a reliable source so as to be sure of getting a good strain true to name. Everyone knows the disappointment of raising a fine batch of plants from seeds only to see them produce flowers of quite the wrong colour.

If the directions given in the September issue for growing bulbs in bowls were made use of, many of them will be in full flower now; but in addition to them every garden here ought to have some outdoor flowers for cutting in January. Such gardens seem to be far and few between, and, of course, where there is glass they are not so much missed, but even then the brightness they give to the garden now is a great consideration. If shrubs are being planted, space ought to be given either to the yellow winter Jessamine or to the *Garrya elliptica*—both if possible. Everyone knows the Jessamine; it will grow almost anywhere; it prefers a wall, and is excellent on a north wall, which is often difficult to cover.

The *Garrya* is not so well known: it is an evergreen with grey-green glossy leaves, and forms a handsome, well-shaped bush in a few years after planting, and in December and January bear long, graceful, pale-green catkins, which last a very long time, even when cut.

Iris stylosa and Christmas Roses are both very beautiful, easily grown, and flower freely. The hottest, driest, sunniest spot in the garden is the place for *I. stylosa*: at the foot of a south wall or the hot corner in an angle of the house or greenhouse, a spot so hot and dry that little else would grow there. Give them the poorest of soil and they will be perfectly happy and bloom continually from November to March. March or April is the best time to plant.

Christmas Roses like a partially shaded and damp situation: and when preparing the ground for them dig deeply, adding plenty of old manure and leaf mould, and if the soil is naturally very heavy some wood ashes or road scrapings. The end of January is a good time to plant. Put plants about 2½ feet apart. They dislike disturbance, and when planted in properly prepared soil all they require is a mulch of manure every spring, and they will flower freely through December and January. Flowers are best picked in the bud and allowed to open in water. They last cut for a fortnight.



Quince Gigantesque de Vranja.

JUDGING by its appearance in a young state this promises to make a very handsome lawn specimen. The leaves are large and leathery, varying from 2 to 3 inches wide and from 3 to 5½ inches long, and furnished with a soft yellow tomentum on the under side. The veins and leaf-stalk are reddish and the bark of the young shoots dark brown. The prominent stipules are fairly persistent, many of them being still retained with the leaves in November. The fruits are large and handsome, about the size of an average Keswick Codlin apple, and of the same yellow colour. Should this variety prove free fruiting, it might be worth planting on this account as well as for its ornamental value. J. W. B.

New Barberries.

OUR gardens have been greatly enriched by Mr. E. H. Wilson's travels in China, and to the Barberry family numerous additions have been made, several of which are likely to become great favourites.

These notes are made from plants at Glasnevin, and on some species they are necessarily limited and incomplete, because the plants have only been in cultivation for a short time.

For garden purposes we can roughly divide them into two groups—

- (1) those valuable on account of their fruit;
- (2) those valuable for their evergreen foliage and flowers.

In the first section come the *Polyantha* group with deciduous foliage.

Berberis Prattii, if it will always fruit like it has done this autumn, is far away the finest of the *Polyantha* set, and in fact one of the best of all fruiting Barberries. A bush $3\frac{1}{2}$ feet high, about 4 years old, has been a beautiful sight from October to December covered with salmon-red or cerise fruit with a plum-like bloom. The bush is a pyramid shape, sending up strong erect shoots from the base, bearing the following season large clusters of fruits. Lateral branches when fruiting often have the clusters closely together so as to resemble large drooping panicles 6 or 8 inches in length; the photo illustrates some of the side shoots. The leaves, before falling about the beginning of December, turn a beautiful red.

Berberis Prattii is found at an altitude of about 8,000 to 9,000 ft. in W. Szechuan, and there grows to a height of 6 feet or more.

The young shoots are light brown, usually bearing slender trifid spines nearly an inch long, the leaves varying in size and shape, from $\frac{1}{2}$ to 1 inch long, and from oblong to obovate, mucronate with margins entire or spiny. The flowers are small and yellow borne in long panicles. The fruits are oval, nearly a quarter of an inch in length with persistent style, and contain two seeds.

Berberis Prattii var. *recurvata* is said to differ botanically from the type by its narrow inflorescence and curved pedicels. When growing it appears less vigorous and has smaller leaves, but is a very pretty shrub.

Berberis polyantha is making a strong growing erect bush, and bears numerous deep yellow flowers, but is very shy here in producing its red fruits.

Berberis brevipaniculata for garden purposes may be termed an inferior *B. Prattii*, with much smaller clusters of fruit. "Botanically it differs from *Prattii* in the glabrous branches and inflorescences, and smaller leaves which are distinctly glaucous underneath and shorter panicles and bracts" from *Plantæ Wilsonianæ*. This species and *B. polyantha* were sent out by Veitch a few years ago.

Berberis aggregata is allied to the former ones:

it is said to grow five feet or more high, and was shown by Hon. Vicary Gibbs at the R. H. S. on October 7th last. The berries are densely clustered on the branches, and there is something very attractive about the bright red fruits. Up to the present it has not fruited very freely at Glasnevin, but the bushes are still very young. Two delightful fruiting Barberries, which are closely allied, are *B. Wilsonæ* and *B. Stapfiana*, both are exceedingly spiny and bear coral red fruit sprays, which are most useful for autumn decoration; it is difficult to know at which stage they are most beautiful, when ripening they are yellowish white flushed with rose and gradually assume the warm coral colour towards November. *Berberis Wilsonæ* we cannot praise too highly, for whoever grows it at all well soon gets to love it. It forms a spreading close-growing bush, usually broader than high: at Glasnevin it has not reached 3 feet in height.

B. Stapfiana does not cover the ground so much, but is more erect and loose in habit, and looks like growing much taller, and carries the fruit where it will not be soiled by winter rains. Cut sprays of these two species are much alike, although the fruit of *B. Wilsonæ* may be slightly rounder; the young shoots of *B. Wilsonæ* are pubescent, while those of *B. Stapfiana* are glabrous. The foliage of both species is very much alike, and variable in size from $\frac{1}{2}$ to 1 inch long, oblanceolate in shape with a peculiar grey green above and slightly glaucous beneath. *B. Stapfiana* was described by Dr. C. Schneider last year, and was raised by Maurice de Vilmorin, and also collected by Wilson in China. Messrs. Veitch received an award of merit for this species when they showed a specimen 4 feet high in October, 1912.



BERBERIS PRATTII.

A new Chinese Barberry with beautiful cerise coloured berries.

B. subcaulilata appears to ripen its fruit later and seems a stronger grower than the other two, the leaves are larger and the branches are angled.

The following evergreen *Barberis* of the *Wallichiana* section have a general resemblance, and bear blackish fruit covered by a bluish bloom.

Berberis Gagnepainii has now been introduced some years: it suckers freely, grows vigorously, and has a narrow waved leaf spiny on the margin about 2 to 3½ inches long.

According to Professor Sargent, *Berberis Sargentiana* is the only evergreen *Barberry* which has proved perfectly hardy in the Arnold Arboretum; in Massachusetts the winters are much more severe than in any parts of Britain. All the *Barberis* here mentioned have not been affected by Irish winters, but it is worth knowing that *B. Sargentiana* is much harder than *Wallichiana* and others, for hardy evergreens are very useful. It resembles a strong growing form of the latter species with the young stems reddish.

Berberis Julianæ has been named by C. K. Schneider in compliment to his wife, and promises to make a handsome dense growing evergreen; the leaves are a very deep green, with spiny margins, from 2 to 4 inches long and broadly lanceolate in shape.

Berberis levis and *Bergmannia var. acanthophylla* are two more new forms, the former with long narrow leaves, and the latter somewhat resembling small holly leaves.

Berberis verruculosa, with warty branches, is a dwarf sturdy bush, with dark green spiny leaves about 1 inch long, which are glaucous underneath.

B. Wallichiana var. pallida, which was sent out by Vilmorin, has been changed to *B. candidula*. Its very prostrate habit and slow growth should make it valuable for the rockery.

C. F. B.

Aralia Sieboldii.

Our illustration is from a photograph of a fine specimen of *Aralia* which was in full flower on the 1st of December, 1913. Mr. Ruthven, who kindly sends the photograph, writes:—

"This plant usually blooms in September:

this year it is not only two months later, but the blooms are double the quantity. The plant is growing in the open facing south-west, sheltered overhead by a glass-roofed verandah."

The Ivy is a relative of the *Aralia*, both belonging to the same natural order called *Araliaceæ*, so that the flowers are similar in shape and structure, but those of the *Aralia* are white, borne in much larger clusters, consequently when in flower the plant is strikingly handsome.

Although in gardens it is usually known as *Aralia Sieboldii* or *A. japonica*, its real name is *Fatsia japonica*, the word *Fatsia* being derived from the Japanese name of one of the species. In England, except in the south-west, this *Aralia* is not hardy enough to stand the winter, but in

most of our Irish gardens it will survive and make a beautiful evergreen bush.

On account of its handsome shining green leaves many plants are raised from seed annually and sold for indoor decoration, for this *Aralia* is one of the best plants to stand the somewhat adverse conditions to plant life found in a dwelling house. "Castor Oil Plant" is a name frequently but wrongly applied to this *Aralia*, for Castor Oil is obtained from the seeds of *Ricinus communis*, which is treated as an annual when grown in this country, but in S. Europe may be seen growing like a shrub.



Photo by]

[J. A. C. Ruthven,

ARALIA SIEBOLDII.

In Achmacarry Garden, Sandymount.

A Naturalist in Western China.*

THIS is the most interesting book of travel we have seen for many years, and embodies Mr. Wilson's eleven years of exploration in the little known parts of the Flowery Kingdom.

Robert Fortune, for the Royal Horticultural Society, and then Charles Maries on behalf of Messrs. Veitch in 1879, collected many valuable plants, but apparently they did not go far enough into the interior, so it was left to later years, when the collections of the Roman Catholic priests, les Abbés David and Delavay, also those of Pratt and Henry, astounded botanists, and they began to realise China's

* "A Naturalist in Western China," by Ernest Henry Wilson, V.M.H. London: Methuen & Co., Ltd., 36 Essex Street, W.C. 2 vols. Price 30s. net.

enormous floral wealth. To-day it is recognised that China has the richest temperate flora in the whole world. Our gardens are indebted to China for the originators of our Tea and Rambler Roses, Chrysanthemums, Camellias, Indian Azaleas, Greenhouse Primulas, Tree Pæonias and Clematis, and also many fruits.

Mr. Wilson's travels in Western China began in 1899: the first and second journeys were undertaken for Messrs. Veitch, the third and fourth for the Arnold Arboretum, U.S.A. Mr. Wilson tells us he was singularly fortunate in his wanderings. Although in the interior during the Boxer outbreak and the Russo-Japanese war, he never met with any incivility meriting the name, and the Chinese peasants whom he trained as collectors were very faithful, and their final parting was with genuine regret. As the route taken was along the Yangtze River, said to be over 3,000 miles in length, there is much written about the wonderful scenery along its basin, its tributaries, falls and the famous Yangtze gorges.

The illustrations of snow-capped mountains, 21,000 feet high, bring home to one their grandeur, while Mr. Wilson believes that some of the Yun-ling mountains, which divide Western China from Tibet, exceed in height those of the Himalayas.

The "Red Basin" of Szechuan is said to be one of the richest and fairest regions in the Chinese Empire, self-contained, with the exception of cotton, which is imported; of vast agricultural wealth, teeming with towns and abounding with salt, coal and iron: the predominant rocks are red clayey sandstone. The formation of Hupeh is carboniferous limestone, sparsely populated and too wild and savage for agricultural development, therefore of particular interest to the botanist.

Patience, tact and abundance of time are essentials in Chinese travel when away from the beaten track, for the oriental methods obtaining there are the native sedan chair or one's own legs. This is forcibly brought home in Wilson's journey across the Hupeh-Szechuan frontier in his own words:—"For twenty-two consecutive days my followers and I had struggled through the wild, lonely fastnesses of N. W. Hupeh, suffering much from bad roads, worse accommodation and scarcity of food supplies. For the first time on record the journey had been accomplished by a foreigner."

The potato comes in for notice as follows:—"The decaying stumps and stark tree trunks speak eloquently of the magnificent forests which must have formerly existed here until destroyed by axe and fire. To the botanist and lover of nature this vandalism is painful, but presumably it was necessary for economic reasons. *The unwilling cause of it all has been the Irish potato.*"

Professor Sargent, in a valuable introduction, compares the forest flora of eastern continental Asia with that of eastern North America, and rightly says that Mr. Wilson has shown us more than any other traveller the floral richness of China.

Near Tachienlu Wilson found a freestone peach, with long narrow leaves, rather small fruits, downy on the outsides, about which he writes:—"At the time I paid no further attention to this peach, but in 1910 I secured ripe fruit and found—to my astonishment—that the stones were perfectly smooth, free and relatively very small—characters denoting a distinct species of peach. It proved to be new, and has since been named *Prunus mira*. I regard this as the most remarkable of the discoveries I have been privileged to make. This new peach is now in cultivation, and by cross-breeding with the old varieties of the garden peach (*P. persica*) may result in the production of entirely new and improved races of this favourite fruit."

A wild species of currant (*Ribes longracemosum*) is stated to bear large black fruit of good flavour on racemes 1½ feet long! So it is possible that these Chinese fruits may intercross with our fruit with good results.



T. BEHAN.

Appointment.

MR. T. BEHAN, who wrote the Dublin Market Reports last year for our paper, has been recently appointed Horticultural Instructor to the County Committee of Agriculture for West Cork. After some years' experience in gardening, Mr. Behan went to the Horticultural School of the Albert Agricultural College to be technically trained. He also had an excellent and successful course under Mr. Adams at Clonakilty, and he is now back again at the scene of his past study, to promote Horticulture, Clonakilty being one of his districts. We sincerely wish the fullest measure of success to Mr. Behan in his new duties, and hope we may still retain his services as a contributor.

Cultivation of the Potato Onion.

THIS vegetable is found in many Irish gardens, but growers do not plant it largely because there is difficulty in keeping the bulbs through the winter. Very often one finds this crop planted on ridges with a good layer of fresh manure under the bulbs, and then the grower wonders why his bulbs will not keep for any length of time. The early decay of the bulbs is due to one or both of the following causes:—Too much fresh manure applied at the time of planting, or the bulbs are harvested and stored before they are thoroughly ripe. Like all varieties of onions, this crop delights in a rich deep soil, and to get the best results the ground intended for this crop should be manured and deeply dug in the autumn or early winter. If the ground has been manured for a previous crop about three barrowful of well decayed manure to every perch of ground will be quite sufficient. It is important that this crop should have a long season, and the bulbs should be planted at the end of January or early in February. Many people consider the smaller bulbs are good enough to plant, but this is a mistake; medium-sized bulbs should be selected for this work. Keep in mind that there is something in the old saying: "The man with the biggest feet grows the best onions," and make the soil firm, particularly if a light, sandy or gravelly nature. The bulbs can be planted on the flat or on a slightly raised bed, and the proper distance is 1 foot between the lines and 9 or 10 inches from plant to plant. Avoid deep planting, and allow the top of the bulb to be on the surface of the soil. A dressing of soot applied when the plants are making good growth will be beneficial to the crop. Run the Dutch hoe through the ground frequently on dry days. This operation cannot be done too often, and it not only warms the soil when every degree tells, but hastens growth in the early part of the season. Do not harvest the bulbs before they are thoroughly matured and dry. Any cool place where frost or damp can be excluded will answer for storing the bulbs. In an average summer the bulbs will be fit to lift before the end of July, and the ground can then be forked over and planted with Savoy, Cabbage, winter or spring Broccoli, &c.

Generally speaking, seedsmen and others have great difficulty in obtaining a sufficient supply of home-grown bulbs, and I have never yet met any grower who had any trouble in selling his surplus stock. The prices offered vary from 12s. to 18s. per cwt., and as an acre of ground under fairly good cultivation will yield from $3\frac{1}{2}$ to 1 ton of bulbs, the cultivation of this crop might with advantage be taken up by cottagers and others.

J. DEARNALEY.



Phoenix Park.

WALSH states that the Phoenix Park derives its name by corruption from the native Irish name of the manor "Fionn-uisge," which signifies clear water, and applies to the chalybeate spring near the Vice-Regal Lodge. The word "Fionn-uisge" is properly pronounced "Finniské," and has been corrupted by the English into Phoenix. Lord Chesterfield, when Lord Lieutenant of Ireland, erected the column with the figure of the mythical bird surmounting its capital, which has assisted in perpetuating this absurd misnomer.

The Month's Work.

The Flower Garden.

By WM. G. WADGE, Gardener to Lady O'Neill, Shane's Castle, Antrim.

GENERAL.—The work in this department during January consists chiefly in cleaning and renovating any defects in lawns and walks and in making preparations for the coming months.

TIDINESS in the pleasure grounds is as important now as at any season. The fallen leaves are all now under control, and the outer parts, at least, of shrubberies raked, so that no leaves will be blown from thence by the first gale to annoy us. The lawns should have a light sweeping with a birch or bamboo broom to scatter any wormcasts, and if the weather and the turf is fairly dry, a rolling afterwards will put on a finishing touch.

LAWNS.—This is a good time to improve lawns. No other part of a garden is treated so meanly. If we consider the constant mowing and sweeping, the taking away of every bit of leaf or grass that would nourish the roots, and how rarely anything is returned to it by way of manure, it is not surprising that daisies, plantains and other weeds and coarse grasses take possession. The great objection to topdressing with soil or natural manure is its unsightliness for two months or more. Where this can be overcome, thoroughly decayed manure, wood ashes, road scrapings, and the remains of the rubbish fire, any or all of these mixed together and spread evenly over the grass will have a marked effect. A dressing of Basic Slag may be given as an alternative. Return any spots made bare by hard wear or under trees, and hollows may be levelled by paring off the turf and replacing after adding some fine soil.

WALKS.—Where by constant use of the edging iron walks have been made wider than they were originally intended to be, and than it is desirable they should be, take them in hand now. Level up with soil on one or both sides and lay the desired breadth of turf. Thoroughly beat and roll it, afterwards cutting a good straight edge to the line. Where there are only slight crooks in the verge to be remedied, make a cut with the edging iron about 6 inches away from the edge. Push the turf out further than the straight line of the verge to allow for trimming the edges, and fill in behind with pieces of turf.

SUMMER BEDDING.—It is not too early to think of this. If the plans are made for planting the beds, we can tell approximately what number of plants of the different subjects we shall require, and begin propagating to make up any deficiency. Remember one well grown plant furnishes better than two or three poor ones. If there is a scarcity of any variety of Geraniums, and some of the old plants were boxed up, place them in heat, and when the shoots are 3 inches long root them in light sandy soil. Give autumn struck plants ample ventilation, but very little water. Calceolarias, Pentstemons, and Violas may have the light removed from them on mild dry days. Keep any decaying leaves picked off, and loosen the surface soil with a pointed stick. Make sure that Begonia tubers are safe from frost and drip. Swainsonias, Streptosolens, and Marguerites must be potted into larger pots before the roots get matted together, where they are grown as large specimen plants for the flower beds.

SHRUBBERIES.—In many gardens there are corners filled with common shrubs, as Laurel and Privet, that would be much improved if replanted with choicer shrubs and flowering plants. The present occupants could be cleared out now, the ground dug or trenched, and some manure or new soil added. Planting will be best deferred till the end of March. When ordering the plants, include a good proportion that give colour in the autumn and winter, either by variegated foliage or berries or coloured stems. It is at this season that the shrubbery is more prominent when the beds, and even the herbaceous borders, are dull and comparatively uninteresting.

AZALEAS and RHODODENDRONS need topdressing every second year, and it is better if done annually owing to their surface rooting habits. They like peat, but loam, free from lime, mixed with leaf-mould, will do equally as well. Place a layer 2 or 3 inches deep over the ground as far as the branches cover.

SEED SOWING.—Not many seeds need sowing this month, but Antirrhinums and East Lothian Stocks should be got in without delay, also fibrous-rooted Begonias may be sown late in the month and the tuberous-rooted if the stock of tubers is small.

PREPARING GROUND.—Any beds not filled with spring flowering subjects may be manured and trenched or dug, and the surface left rough. The trenching will help to rid the soil of slugs and insects, while the beds will be in good order when planting time arrives. The ground where it is intended to grow Sweet Peas should be prepared now if not done already. Trench it 3 feet deep, adding a heavy dressing of manure; mix the manure with the soil as the work proceeds. The top soil may be left rough, the rougher the better, but it is advisable to break up any lumps in the under soil.

REMINDERS FOR STORMY DAYS.—Get stakes pointed and tied in bundles of different lengths for Dahlias, Delphiniums, &c. Tallies may be made, large ones for the herbaceous borders, smaller ones for the seed beds. When birch or snowberry branches can be got, time may be profitably spent in making a good stock of brooms. Should snow fall, look around for any laden trees and relieve them with a pole, or serious damage may be done to some choice specimens.

The Fruit Garden.

By PETER BROCK, Horticultural Instructor for Co. Fermanagh.

THE cultivation of fruit for commercial purposes is increasing steadily, and in many cases very satisfactory returns are now being obtained from comparatively young orchards.

PLANTING PREPARATIONS.—If the weather and condition of the land permit, such work as draining, digging, and ploughing may be given attention. Where horse labour can be applied care should be taken to loosen the panned crust that is frequently found too near the surface to be suitable for laying down to fruit plantations. If no special trenching implement is available, I have found a cast-off plough from which the coulter and mould-board have been removed suitable for loosening the bottom of the furrow. In this way the plough pan, if it exists, is broken and the land evenly deepened and aerated to a suitable depth. Land that has been cultivated for green crops in ridges is generally in the best

possible condition for planting orchards, the splitting of the ridges, if only one year from lea, being as a rule sufficient to give a depth of 18 to 20 inches of loose surface.

PLANTING.—Trees arriving from the nursery should—if the weather is open—be immediately unpacked, and any strong roots with a downward tendency or those that have been roughly cut with the spade should be cut back to sound wood with a sharp knife, then they may be heeled in a trench and the roots firmly covered with fine soil. Treated in this way the callusing of the wounds on the roots goes on as well as if they were permanently planted. If, however, the trees arrive during hard frost, place the package, unopened, in some outhouse and cover with litter till the frost goes. Do not attempt to plant when the land is in a mortary or saturated condition. So long as the trees are safely heeled in they will be quite safe, even if no chance should occur of getting the land in a suitable condition till March. If planting should be done under a bright sun or drying wind do not allow the roots to become dried by laying out too many trees ahead of the planting without temporarily covering the roots. Whatever spacing and arrangement is decided on it is an advantage to have the position of each tree marked with a peg, or, if the trees require a permanent stake for a few years, the stakes should be driven before the planting is started. Avoid planting too deep, especially on heavy land. The earth mark on the trees showing the depth they had been growing in the nursery is a safe guide. Plant firmly by treading with a jerk, so that the fine soil will be placed in close contact with the roots. Secure the tree to the stake with fibre coir rope, better known as "haryped" or hay rope, by first placing a collar of cloth on the tree, then wind the rope three times round the stake, near the top, to form a pad for the tree to rest against, and clasp the tree by crossing the rope between the stake and the tree, and tie behind the stake. If there is any risk of rabbits or hares peeling the trees each tree should get a thick coat of lime wash, or, better still, place a collar of wire netting round each tree.

MANURING.—If not already done, any trees or bushes requiring assistance with topdressing of farmyard manure should be attended to. Those situated on the coast and within reach of seaweed should have plenty of this valuable mulching washed up on the shores of late, and if such is now applied to such gross feeders as black currants, let it extend fully as far as the roots; afterwards apply about two three-gallon bucketsful of liquid manure from the drainage of stables or byres, it will be sufficient to produce a vigorous growth and the finest possible sample of fruit. Old trees stunted from starvation and overcropping derive great benefit from occasional waterings during winter with liquid manure. As a rule too much manure is applied to young trees and not enough when they come into full bearing. Following a season such as the past, when so many orchard trees produced little or no fruit, an application of two tons of lime to the statute acre would, in many cases, be more beneficial than farmyard manure.

WINTER SPRAYING.—The greater part of the injuries caused by fungoid and insect pests is largely due to the accumulation of parasitic growths which afford a favourable shelter and propagating ground for such as pass the winter

stage on the trees. Trees that have been neglected for some years should be sprayed with 2 lbs. caustic soda to 10 gallons water. Apply it on a calm, dry day, damping every part of the tree right over the smallest twigs. It is seldom we get the weather so calm as to be able to spray trees thoroughly all round; it is, therefore, advisable to watch for an opportunity when the wind changes to thoroughly complete the work on the side where there may be traces of parts of branches being ruined. The lime sulphur has given great satisfaction as a winter cleanser of the bark, and for plums and gooseberries it is asserted to be a protection against sparrows and bullfinches attacking the buds of plums and gooseberries as they begin to swell about the end of January. Applied at a strength of one gallon commercial lime sulphur to 20 gallons water; it is a self marker, and shows where any part of the tree has not been sufficiently sprayed, it sticks to the bark for months, leaving it bright and clean the following summer. Trees affected with scab should get a second spraying towards the end of February or early in March. In the treatment of scab on apples and pears I have seen good results from spraying during winter with 1 lb. copper sulphate (bluestone) to 10 gallons water. I have also known of cases where this has failed to show any benefit, but I have no doubt the failure was due to imperfect spraying. When any kind of spray fluid is applied with a certain object in view, unless the spray reaches every part of the tree, to the smallest twig and crevice, spraying is sure to end in disappointment, especially when dealing with such small objects as spores.

THE RUBBISH CORNER.—Every fruit garden should have a corner set apart for all kinds of burnable refuse, such as prunings of fruit trees and bushes, trimming of hedges, &c. When sufficient free-burning material is available for starting a good fire it should be set agoing, and when sufficient foundation is obtained slow burning material should be heaped on so as to check the progress of the burning and reduce it to a slow smouldering fire which, with a little care in management, can be kept burning vegetable refuse for several days. The ashes accumulated at the completion of the burning will afford an excellent topdressing for some choice fruit trees, or it may be protected from rain by storing in some dry place, and kept for topdressing seed beds in spring.

The Vegetable Garden.

By ARTHUR HORTON, Gardener to Colonel Claude Cane, St. Wolstan's, Celbridge.

THE SEED ORDER.—To the vegetable grower one of the most important items at the present time is the making out of the seed order, and should be taken in hand at once. It is often put off as long as possible and then made up in a hurry, consequently some important seeds are omitted, and probably the mistake will not be found out until they are wanted, which is very annoying and means a loss of valuable time. A good plan and one that can be recommended is, before making out the list to go over the catalogue and carefully mark each variety and quantity required. It is advisable to keep the previous year's marked catalogue for reference, and any variety that has not come up to expectations

score it off and make up the quantity with another proved to be good.

Another important point is, do not place too much reliance on old seed; although they may germinate well enough, the plants seldom have the same vigour as plants grown from new seed. Melons, cucumbers, and runner beans are exceptions, and some people prefer old seed to new.

DIGGING AND TRENCHING.—Where there is much digging and trenching to be done get it forward as weather and time permit. On very heavy and wet soils it is often advised to leave it until late in the spring, but where labour is scarce it is impossible to do everything in its proper season, and most gardeners know to their cost if work is behind in the spring, when everything requires to be done at once, the season will be well advanced before the lost time can be made good. Trenching, if carried out in the proper manner, is slow and laborious work, but it well repays the extra time and labour expended on it, and if possible a portion of the garden should be done every year, as undoubtedly deep cultivation is one of the chief factors in successful vegetable growing either for kitchen or exhibition. What people call good luck is frequently only the result of the application of shrewdness, pluck, determination and hard work.

HOTBEDS AND FORCING.—In most gardens the forcing of vegetables is carried out to a greater or less extent, and as no two gardens are alike in their conveniences or lack of them, as the case may be, no hard and fast lines can be followed, but each one has to make the most of what he has at command. Generally speaking, where leaves and long stable litter are plentiful, frames will be found as good if not preferable to pits or other structures heated by hotwater pipes. Pits or frames may be got ready for an early supply of potatoes, leaves and half-spent horse manure well turned several times is best for this purpose. After the fermenting materials are in position and the heat on the decline, place about a foot of light soil on top, leaving plenty of room between soil and glass for tops to develop. For most early varieties, such as Ashleaf, Sharp's Victor, Harbinger, and May Queen, which are all good for forcing, 15 inches between the lines and 1 foot between the sets is about the right distance to plant.

SEAKALE, when it is well grown, is always acceptable, and probably more of this vegetable is forced than any other. Until the permanent beds are ready for use, a succession can be kept up by crowns lifted in November for that purpose. Large pots, boxes or barrels are all suitable if placed in any warm structure: light and cold air must be excluded.

ASPARAGUS.—There are many methods of forcing this useful vegetable, but one of the best is in frames, the same as recommended for potatoes, with the exception that about 4 inches of soil will be found sufficient: plant the stools thickly: afterwards give a good watering; always keep on a little air night and day: a nice temperature is between sixty and seventy. As the season advances less heat will be required, therefore successional batches may be grown in the same frame.

GENERAL REMARKS.—Look over seed potatoes and place them in a light position for sprouting. Seeds of onions, leeks, tomatoes and cucumbers for early supplies may be sown in boxes and pots during this month.

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Department of Agriculture and Technical Instruction for Ireland.

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Mendelism.

BY PROFESSOR JAMES WILSON, M.A.

FOR the breeder of plants there has been no more important discovery than that made half a century ago by Gregor Mendel, the abbot of Brunn : for it explains why plants are or are not like their parents, and so becomes a guiding principle to breeders whether they would maintain their stock at its present level or alter or improve it in one direction or another.

Till Mendel's work was discovered and its importance understood, some thirteen years ago, the producer of new varieties had only two methods of operation at his command. He might search the globe for something new or strange, or he might cross the varieties already in his possession in a haphazard kind of way in the hope that something unusual might emerge from among their descendants. Then when the novelty was discovered the great trouble was to preserve it and keep it pure. Mendel's discovery sets aside neither of these methods, but rather emphasises the need for both. Above all, however, it makes the breeder's work far more precise, by pointing with some certainty to the plants to be selected as parents and by indicating how their descendants should be dealt with in order that those worth keeping may be sorted out, preserved and purified.

It used to be believed that when two varieties were crossed their descendants split up capriciously, in the second and subsequent generations, into an irregular array of many different varieties. The first part of Mendel's work was to show that this is not so, but that, although they do split up into many varieties, these varieties are produced on a regular plan and in numbers perfectly definite and clear.

Before Mendel's time a large amount of work had been done in the hybridisation of plants : and Mendel, who was keenly interested in the subject, and saw that no one had gone to the trouble of counting the numbers of varieties produced by the hybridising of two different parents, determined to undertake the work. To this end he set about selecting his parent plants with extraordinary judgment and care. First of all he laid down three rules to which they must conform, viz. :—(1) They must differ from each other by characters which bred true. (2) Their hybrids must be naturally protected or readily

protectable from strange pollen during the flowering period. (3) The hybrids and their descendants must suffer no serious diminution in fertility.

He then decided that the plant which fulfilled these conditions best, and was also most easily cultivated, was the ordinary edible pea ; and, having purchased the seed of 34 varieties, he grew these under his own observation for two years before starting his experiments, in order to see that they fulfilled the conditions laid down and that they bred true.

At the end of the two years only 22 of these varieties were retained, the rest having been discarded. Among these 22 varieties he found a number differing from the others in one or more of their salient features. Some had round seeds, some wrinkled ; some had long stems, some short ; and so on ; and he mated a number of plants which differed from each other as regards these salient features. For instance, he made 60 cross-fertilizations between plants having round seed and plants having wrinkled : sometimes using the one kind as the male parent and sometimes the other. All the progeny had round seeds only ; none had wrinkled. Similar results followed all the other crosses. The hybrid progeny were always like one parent only as regards the features in which the two parents differed.

The following table gives the feature borne by the parent plants and the feature borne by the hybrid progeny of each separate pair :—

<i>By the Parents.</i>	<i>By the Progeny.</i>
Round seed and wrinkled . . .	Round seed.
Yellow albumen and green . . .	Yellow albumen.
Grey seed-coat and white . . .	Grey seed-coat.
Inflated pods and constricted . . .	Inflated pods.
Green unripe pods and yellow . . .	Green unripe pods.
Axial flowers and terminal . . .	Axial flowers.
Stems from 6 to 7 feet long and from ¾ to 1½ feet	Stems 6 to 7 feet long.

In connection with this phenomenon of a feature—or *character*, as he called it—of one parent being retained while the complementary feature of the other parent is lost in the progeny, Mendel used two words which it is necessary to remember. He called the feature which is retained the *dominant* and the one which is lost the *recessive*.

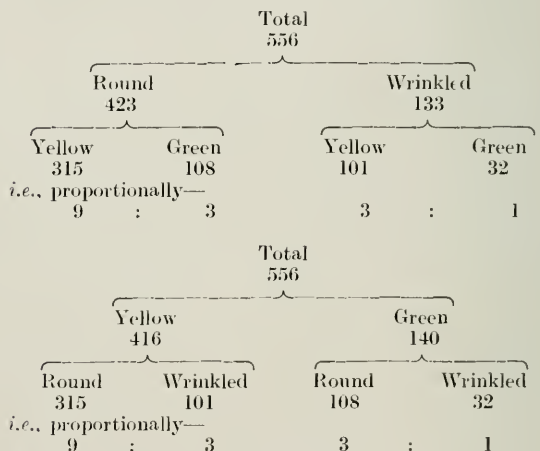
The next part of Mendel's work was to observe how the hybrids bred which were produced as related above; and, as he saw to it that they were self-fertilized, this means that he observed the kinds of progeny produced by the hybrids when fertilized by their own pollen. The result was remarkable for two things: first, that the characters which had disappeared in the hybrid generation—*i.e.*, the recessive characters—reappeared again; and second, that they appeared only once in every four cases, the dominant characters appearing in the other three. Thus, in the second hybrid generation the dominant character which was carried by one original parent appeared three times as often as the recessive character which was carried by the other. In order that this result may make the fullest impression on the reader, we shall set down the actual figures obtained by Mendel with each of the seven sets of hybrids dealt with; and, at the same time, we shall set down in parallel columns the ratios which the figures for the dominant characters bear to those for the recessives:—

<i>Actual numbers.</i>		<i>Ratios.</i>
Round seeds . . .	5,474, wrinkled	1,850 = 2.96 : 1
Seeds with yellow albumen	6,002, with green	2,001 = 3.01 : 1
Seeds with grey seed-coat	705, with white	224 = 3.15 : 1
Plants with green unripe pods	428, with yellow	152 = 2.82 : 1
Plants with inflated pods	882, with constricted	299 = 2.95 : 1
Plants with axial flowers	651, with terminal	207 = 3.14 : 1
Plants with long stems	787, with short	277 = 2.84 : 1

A farther experiment of Mendel's showed that the distribution of the first pair of characters among the descendants of the original parents was independent of the distribution of the second pair; and, as a knowledge of this helps towards an understanding of the whole problem, we shall consider it now, even though in doing so we depart from the order of Mendel's own exposition. Mendel mated plants having round seed and yellow albumen with others having wrinkled seed and green albumen, and observed how these characters were distributed among their descendants. That is to say: he mated plants differing from each other in two pairs of characters and observed how these characters were distributed among their descendants. In the first generation the seeds were all round, with yellow albumen—the dominant characters only appeared; but in the second generation they split up as shown by the following table, which gives the actual numbers and the proportions to which these numbers can be reduced:

	Round and Yellow	Round and Green	Wrinkled and Yellow	Wrinkled and Green
Actual numbers =	315	108	101	32
Proportion =	9	3	3	1

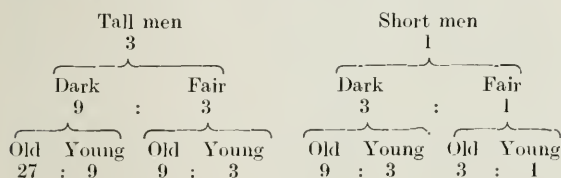
It will be noticed that there were 556 seeds in all, of which 423 were round and 133 wrinkled, while 416 had yellow albumen and 140 green. Thus the dominants were to the recessives in the proportion 3 : 1 as regards both pairs of characters. It will be noticed farther that, whether we take the round group of peas or the wrinkled, those in it having yellow albumen were to those having green in the proportion 3 : 1, and whether we take the group having yellow albumen or that having green, there were in it three round peas to one wrinkled. The distribution of one pair of characters did not affect that of the other. The cause which operates either pair works independently of the cause which operates the other. This may be made still clearer if set down in diagrammatic form, thus:—



Mendel's own experiments went no farther in this direction, but we can elaborate his result as far as we please. From the fact that he says nothing to the contrary as well as from our own knowledge we know that the distribution of none of his seven pairs of characters was interfered with by the distribution of any one of the others. Thus, when the original parents differed in one pair of characters, there were two kinds or groups in the second hybrid generation, and when they differed in two pairs there were four. The additional pair of characters in which the original parents differed split the previous groups in two, and thus doubled their total number. Had Mendel gone farther he would have found each additional pair of parental differentiating characters splitting the previous groups into twice as many more. One pair of differentiating characters gave two groups, two pairs gave four, three would have given eight, four would have given sixteen, and so on.

The proportionate numbers in each group can be better understood by a non-Mendelian example with which we are more familiar of how the proportions in sub-divided groups increase with every additional sub-division. Among men

there are tall and short individuals, dark and fair, old and young, and so on; and we know that the distribution of any one of these pairs of characters is unaffected by that of any one of the others. Suppose there were three tall men to one short, three dark to one fair, three old to one young, and so on. If we divide a population of this kind by the first of these dividing lines there are two groups in the proportion 3 tall : 1 short. If we split these two groups by the second line of division there are in each group three dark men to one fair. In the short groups there are three dark and short to one fair and short. But as there are three times as many men in the tall group, the proportions of the tall and dark and of the tall and fair men, as compared with the other two groups, must be 9 : 3. Perhaps the proportions for the first two and for any additional number of dividing lines can best be indicated diagrammatically, thus :—



and so on.

We shall leave these figures for the present, but we shall have to return to them again and again. They show how many different kinds may be produced by hybrid plants and the probable number of individuals in each kind. Until Mendel's paper was discovered, the prevailing notion was that hybrids bred in an exceedingly capricious manner, but he showed by his experiments that their reproductive behaviour was characterized by the utmost regularity, and, having done so, the next part of his work was to deduce a law which would explain this regularity. We shall deal with this in next month's number.

[MENDELISM is a subject which is by no means easy to comprehend. Many expositions so abound with intricate phrases and long syllabled words, and make the subject even harder than it really is.

Knowledge worth having usually takes some pains to acquire, and so mendelism is a subject with which it is really well worth while taking some trouble and pains to understand, for nowadays it is a most valuable aid to the breeder, and every up-to-date gardener should be acquainted with its laws.

Professor Wilson has kindly undertaken to explain mendelism to the readers of IRISH GARDENING in as simple words as compatible with the subject. Several articles will be necessary, so that readers should thoroughly digest each month's article before starting on the next—EDITOR.]

Sweet Peas for the Garden and House.

BY MACDUFF SIMPSON, Eastwood, Newtownmountkennedy, Co. Wicklow.

So much has been written in recent years on the intensive culture of the Sweet Pea that many amateurs are led to believe that in growing this favourite annual satisfactory results can be only obtained where the soil is both rich and deep; and my object in writing this short article is to show that in any ordinary soil beautiful results can be obtained, although the finest exhibition flowers may not be produced. The fact is, that by ordinary care and the observance of a few simple cultural instructions, flowers may be grown in profusion which will satisfy those who want a display in the garden and plenty of decoration in the house; indeed I may go further and say that in many cases flowers not unworthy of the show table may be gathered.

To begin, let me say that the case stated is in accordance with my own experience. When I lived in Scotland I grew in the garden of Edrom Manse peas which, in the opinion of the Rev. D. Denholm Fraser, whose name is associated with the *Daily Mail* £1,000 Prize, were marvellous for size, colour and finish; and yet the soil was light, and for the greater part not more than a foot deep. Since I came to reside near the coast of Wicklow I have grown peas which have elicited the admiration of many experts; and yet they have been produced on the hillside where heavy timber had grown for nearly a century, and where the soil is little over a foot deep, and the subsoil very porous.

As deep trenches could not be secured without great labour and expense, I had to content myself with such depth of cultivation as the soil would allow. The plan adopted was what is known as *bastard trenching*—i.e., the removal of the top "spit" and forking a good dressing of rotted manure into the upper part of the subsoil, and replacing the soil in its natural position.

An important point to be observed is that *want of depth may to a large extent be compensated by adding to the width of the cultivated area*; so that instead of making narrow trenches 3 feet deep, strips 6 feet wide were prepared. In addition to the farmyard manure a good dressing of basic slag and bone meal was worked in nearer the surface. The process should be completed before the end of December, and the ground allowed to settle till the peas are ready for planting out in April.

The seeds should be sown in autumn and kept in pots or boxes in a cold frame, where the

young plants can have plenty of light and air in fine weather: or seeds may be sown in *gentle* heat in February, and removed to a cold frame

when the seedlings are two inches high, and hardened off before transferring them to their permanent quarters.

If 5 to 8 seeds be placed around the edge of a 7-inch pot, it will be easy to turn out the ball and separate the plants *without injuring the small rootlets*. Every root should be carefully conserved, and when they are shaken out to their fullest length they should be set in holes deep enough to receive them without cramping, and at spaces not less than 2 feet apart. If the work is carefully done the plants will grow rapidly, and soon form a dense hedge covered with fine flowers from end to end of the row. *Failures most frequently are the result of too close planting.*

To secure long stems rapid growth is essential, and this can only be produced by a copious supply of moisture. My own practice has been to give a liberal application of liquid manure once a week. This I prepare by placing in a barrel of water a bag of sheep droppings and a bag of soot, and stirring up occasionally to keep the liquid at a uniform strength. In wet weather watering need not be so frequent, but an application of some suitable manure to the surface will soon be washed in by the falling showers.

The method of applying the liquid manure in dry weather *is of vital importance*. Most people sprinkle it on the surface with an ordinary watering can, with the result that the roots are



[Photo]

KING WHITE.

[Messrs. Drummond]

The best white Sweet Pea yet introduced, large waved flowers, usually four to a stem.

encouraged to seek the moisture on the top of the ground; and if the watering should be discontinued the roots suffer in the hot sun, and the last state of the plant is worse than the first.

My plan is to form with a draw-hoe a cavity in every alternate 2-foot space, big enough to hold two buckets of liquid, which can be poured in with ease and rapidity, and when the water has soaked away, the loose earth should be shoved back to its place as lightly as possible.

The advantages of this system are almost self-evident. Not a drop of water is wasted, and the moisture is quickly carried down to such a depth that there is no encouragement for the roots to seek the surface, and so they can withstand the effects of dry weather. And in practice this whole process can be carried out more quickly than the old system of surface application.

If the ground be *level* and a slight depression left about the roots of the plants, water may be applied in the old way, but it is never so efficient, while on a hillside (as in my own case) the method here recommended is absolutely necessary.

The best Spencer or waved varieties should be selected, and let them be procured from some reliable seedsman, so that you can depend on their being true to name and absolutely pure. Apart from the superiority of the flowers in size and form, there is the further advantage that Spencers when well grown seldom set seed, and the plants continue to bloom for a much longer season, and the trouble of picking off old flowers is avoided.

There are now hundreds of beautiful varieties in commerce, and the task of naming the *best* dozen is quite impossible, but I can recommend the following:—Edrom Beauty (orange-pink), Scarlet Emperor (scarlet), King White (white), Dobbie's Cream (cream), Melba (light orange), King Manoel (dark purple), Hercules (deep pink), R. F. Felton (lavender), Rosabelle (rose), Mrs. Hugh Dickson (pink on cream), Mrs. C. W. Breadmore (picotee), Maud Holmes (crimson).

There are many ways of providing supports for the climbing plants, but it should always be borne in mind that generally plants treated as recommended will grow 8 or 9 feet high.

"Melba" is the only one in my list which "burns" badly in the sun; but if it be given a very slight shading of muslin or canvas the most beautiful flowers will be produced.

I would like to add a word of warning against the folly of growing impure or inferior seeds. Have nothing but the best Spencers, which you should procure from some trustworthy source. The results will amply reward you, and you will never regret the small additional outlay.

Aster Amellus and its Varieties.

IN small or large gardens these Michaelmas Daisies should find a place, for in September and October the Italian Starworts give such a wealth of bloom, useful alike in a border or when cut for indoor decoration. Their habit is neat and compact, with an average height of about two feet, and their sturdy stems seldom require supports. Old or young plants flower with equal freedom, and they are not particular as to soil unless it is exceptionally poor. A dressing of manure dug into the soil in autumn will greatly help the plants where the soil is impoverished. They may be easily increased by dividing or from cuttings taken in spring when the young shoots appear.

A. Amellus *bessarabicus* and *major* used to be the best varieties. Then we have had other good varieties, such as Charles Davis, Keston, Distinction, and Perry's Favourite.

Now, the Continental nurseries have sent out varieties which are taking the lead, the colours varying from deep mauve, almost a purple, to rosy mauve, or nearly pink.

Probably the best of all is *Beauté parfaite*, of good habit, about 20 inches high, with bright mauve flowers and lovely yellow centres, which seem to make the blooms stand out well. *A. Preziosa* is probably the darkest mauve, and *Fleuve Bleu*, with lighter mauve flowers, has probably the largest flowers, sometimes measuring 2½ inches across, but its growth is taller than the others.

In the shades approaching to pink we have *Beauty of Ronsdorf*, with flowers nearly as large as *Fleuve Bleu*; *Madame E. Gaugin*, very showy and free flowering, almost a rosy magenta; and *Madame Poichevin*, with flowers of a deeper tone, but not quite so pleasing. Another, under the name of *A. Amellus nana multiflora*, grows scarcely more than a foot high, and is covered by a mass of rather small flowers of pretty pale pink mauve.

Schizostylis coccinea.

THE Kaffir Lily is a South African plant belonging to the order Iridæ, and derives its name from the style being cut into three thread-like branches.

Where cut flowers are wanted late in the season this plant should find favour if given a fair trial. The flowers are of a very bright crimson colour, in shape like a *Montbretia*, with a slender tube, and are borne on one-sided spikes. Though the plant is hardy, the flowers open so late in the season—from October onwards—that a sheltered position is necessary if the best results are desired. It succeeds best when given a sheltered border and good rich soil. The great point to be remembered in the culture of this plant is that it is a moisture-loving plant, and therefore in summer when in full growth should be given an abundance of water.

The *Schizostylis* may be propagated in spring by division of the roots. The stems are bulbous and thickened at the base. It is a good plan to collect and pot up the strongest shoots for the greenhouse, as it makes a first rate pot plant, and the flowers come to perfection. A 18-inch pot will take about six plants, using a compost of loam with some leaf mould and sand.

Some Shrubs of Recent Introduction.

A LARGE number of new shrubs have been introduced during the last ten years or so, and there is reason to believe that there are many more to follow. Most of them hail from China, and a good many have been noted in past issues of IRISH GARDENING — notably, *Berberis*, *Cotoneaster*, *Deutzia*, &c.

It may therefore prove interesting to readers of IRISH GARDENING to further extend these notes so as to include the newest kinds and others not hitherto noted.

Camellia cuspidata seems likely to be a useful hardy evergreen, and has received an award of merit from the R. H. S. of England. The deep green pointed leaves turn to a rich bronze-green in winter. The flowers are white.

Cotoneaster amara adds another to the now considerable list of *Cotoneasters* in cultivation, and is likely to become a favourite when better known. It will probably prove nearly evergreen in mild localities. The leaves are small, and the clusters of white flowers are followed in autumn by red fruits.

Cotoneaster harroriana is quite evergreen, with lance-shaped leaves on long graceful shoots, which also bear corymbs of white flowers in summer. The fruits and young shoots are reddish brown.

Cotoneaster reflexa is a deciduous species recommended for wall culture. The ovate leaves and white flowers are very attractive. This should prove a useful kind for those who like interesting plants on walls and houses.

Cytisus Dallimorei is a beautiful and interesting hybrid between *C. albus* and *C. scoparius* Andreanus, and is named in compliment to Mr. Dallimore, late of the Arboretum, and now assistant curator of the Forestry Museum at Kew. The flowers, produced with all the prodigality of the Broom family, are pale rose shaded with mauve. It has been honoured with the award of merit of the R. H. S. of England.

Daphne retusa is a dwarf compact species, and

up to the present only small plants are in cultivation. It is evergreen, and produces fragrant flowers, white tinted with rosy-violet. This choice little shrub is sure to be much sought after in a very short time.

Deutzia longifolia promises to be a welcome addition to this already much-prized genus. It is, of course, deciduous, growing 4 feet to 5 feet or more in height, and freely producing corymbs of rose-coloured flowers in early summer.

Deutzia mollis and *D. Wilsoni* are two desirable white-flowered species, the latter remarkable for the large size of the individual flowers, while *Deutzia Veitchii* is said to be the best of the Chinese *Deutzias*, bearing large deep rose-coloured flowers. It, also, has received an award of merit.

Dipella floribunda and *D. ventricosa* are two interesting introductions with ovate lance-shaped leaves and tubular flowers, the former pale rose

with an orange throat and the latter deep rose and pale yellow within with orange throat.

The first-named grows about 4 feet or 5 feet high, and the latter 6 feet and over.

Euonymus sanguinea is a new species of Spindle Tree which will probably be more a tree than a shrub as the plants get older. It is of particular value for the dark crimson autumn tint of the leaves.

Magnolia Delavayi is one of the most remarkable

members of a strikingly beautiful genus. The dark green leathery leaves are from 12 inches to 13 inches long and 5 inches to 6 inches wide, and are the prominent feature of this plant. The creamy-white flowers are not very freely produced, and are not so beautiful as in some other members of the genus. Here it has grown freely on a shady wall facing north-west, but possibly in a sunnier position more flowers might appear. A first-class certificate has been awarded.

Osmanthus armatus, like most of its kind, is of slow growth, bearing long lance-shaped leaves with deeply toothed margins. The sweet-scented white flowers appear in autumn.

Osmanthus Delavayi is a delightful dwarf evergreen with small ovate pointed leaves, and producing quantities of small white flowers early in the year.

Philadelphus "Norma" adds another to the long list of varieties of Mock Orange, and is remarkable for the large size of the single white



A BUSH OF PRUNUS MIQUELIANA FLOWERING EARLY IN LAST APRIL.

flowers. It is very free flowering, and will be useful in beds or shrubberies.

Sarcococca humilis and *S. ruscifolia* are two useful evergreens thriving well in shady places, and valuable for growing under trees. The bright green glistening leaves are quite attractive, and will be appreciated by those who have wanted something that will do in shade. The last named species has received an award of merit.

Salix magnifica must receive notice since it is, perhaps, the most striking willow known. The fully developed leaves are said to be 6 inches long by 3 inches wide, glaucous above and pale purplish-green below. The catkins are said to reach a length of one foot. Plants in cultivation here are yet small, and have not shown their true character. An award of merit has been conferred.

Symphoricarpos occidentalis, now called *S. laevigatus*, is the best of the "Snowberries," producing in profusion long "ropes" of white fruits which are highly ornamental in autumn. It appears to require good cultivation to do really well, and should be given good soil to grow in.

Spiraea arborea grandis is a new form of autumn-flowering *Spiraea* in the way of the better known species *Aitchisoni* and *Lindleyana*. The immense flower heads are said to grow 18 inches in length. It should prove useful for massing in large parks and pleasure grounds.

Styrax Wilsoni is a new dwarf species, forming stiff wiry growths which produce clusters of white flowers at the tips of the short side growths. It appears to want protection in cold situations, but is worth persevering with. It has received an award of merit.

Viburnum Davidii has also received an award, and is a choice little shrub of dwarf habit bearing ovate leaves and white flowers, followed in autumn by blue berries.

Viburnum harriganum is another dwarf evergreen species with small round leaves, and seems likely to be useful for situations requiring a plant of limited dimensions.

Viburnum propinquum, with ovate leaves and bearing clusters of white flowers in early summer, is also evergreen, but of more spreading habit.

Viburnum Veitchii, another evergreen, is more in the way of some of the older species, and makes a larger bush, bearing coarsely-toothed leaves and panicles of white flowers. This should be a good

shrubby plant, adding beauty and variety where they are often wanting.

Viburnum Henryi is worthy of mention on account of the panicles of coral-red fruits borne in autumn. It is an evergreen species with lance-shaped glossy green leaves, and will yet prove a popular shrub.

Viburnum utile is yet another evergreen, with ovate leathery leaves, and bearing white flowers in spring.

Viburnum phlebolicum is deciduous, producing white flowers in spring; and a similar, but more vigorous, species is *Viburnum theiferrum*, which is proving a good grower, and seems likely to prove a useful shrub.

J. W. B., Dublin.



A SPRAY FROM THE BUSH OF PRUNUS MIQUELIANA
FLOWERING AGAIN LAST DECEMBER.

Prunus Miqueliana.

THE number of hardy trees which produce conspicuous flowers out of doors during the winter months is extremely small, and plants which possess this peculiarity are therefore most welcome. *Prunus Miqueliana* is one of the earliest and most free of the winter flowerers. Forming a branching shrub or small tree, it commences to open its starry flowers in November, and from then well into April it never lacks a few blooms. Even in the very depth of winter, if the weather be at all mild, it presents a gay appearance. The flowers, which are about three-quarters of an inch across, open an almost pure white, but as they get older assume a pinkish colour, giving them quite a different appearance. The flowers are pendulous, on pedicles $1\frac{1}{2}$ inches long, and have about 15 petals, each slightly toothed at the

apex. They are arranged in twos and threes on the twiggy leafless branches, and when at their best the bush is really beautiful.

The leaves, which unfold in April, are ovate in shape and somewhat acuminate, quite glabrous, and having the margins finely serrated. At the base of each leaf is a pair of very finely cut stipules.

Prunus Miqueliana is a native of Japan, and was given an Award of Merit by the R. H. S. (London) in December, 1912.

This shrub belongs to the cherry section of the *Prunus* family, and is perfectly hardy, but it is as well to plant in a sheltered corner to prevent the flowers being damaged by frost, even when one crop of flowers is spoilt another one usually follows after a short interval.

Calanthes.

By T. W. BRISCOE.

THE *Calanthes* are a valuable group of orchids to supply a succession of bloom throughout the winter and early spring months. The principal species are *C. rosea*, *rubens*, dark red, and the various forms of *vestita*, the type being creamy-white with a coloured eye, which varies in colour, thus the variety known as *gigantea* is larger, and has an orange-red spot on the lip; *C. luteo-oculata* has a lip with yellow eye; *C. rubro-oculata* has a red-purple blotch on the disk of the lip; *C. Turner* is white, with a rose-coloured eye; while the late-flowering *C. Regnieri* is also white, but the lip is a pleasing shade of rose-pink. This is a splendid kind for growing near large towns, because the fogs have disappeared before the flowers open, and it is very useful to follow on after the other varieties quoted above.

Numerous hybrids have been raised, and some of them are indispensable where the best flowers are desired. One of the first hybrid orchids to be raised was *C. Veitchii*, which was secured by Dominy in 1856 from the intercrossing of *C. rosea* and *C. vestita*. It is still largely grown, and is rather variable, but usually a rich rose colour. *C. Harrisi* is a beautiful white *Calanthe*, and *C. William Murray* is a strong growing plant with pure white sepals and petals and a crimson lip. *C. bella* is also a fine hybrid with bright rose sepals and petals and a dark carmine lip.

Calanthes are terrestrial orchids which are divided into two sections—deciduous and evergreen; and those dealt with in the present article belong to the former. They have well defined pseudo-bulbs, often 8 or 9 inches high, which bear broad plicate leaves. These usually fall about the same time as the flower scapes push up, which vary in height from 20 to 30 inches.

CULTURAL DETAILS.—*Calanthes* have been successfully grown in such structures as a plant stove, the warmest orchid house, cucumber house, and pine stove—in fact in almost any kind of house where the necessary heat can be maintained. Annual repotting is advisable, and this operation should be carried out in early spring, as soon as they begin to start into growth. If not already done, remove the pseudo-bulbs from their old receptacles, shake away the exhausted soil, and cut off the dead roots, except a little tuft at the base of each bulb, which will serve to hold it in position. *Calanthes* enjoy generous treatment, and the soil should consist of the best fibrous loam two-thirds, and one-third peat or osmundia fibre. A few partly decayed oak leaves rubbed through a $\frac{1}{2}$ -inch mesh sieve, and a sprinkling of silver sand or finely crushed crocks, may be added with advantage. Some growers include dried cow manure, but this is only necessary when the loam is of poor quality. As a general rule the pseudo-bulbs are potted singly, and large pots are not used, because if required they can be shifted into others of larger dimensions later on. A full-sized bulb generally requires a 6-inch or 32 size flower pot, and from this statement an amateur or beginner can usually gauge the pot needed for his own particular bulbs. Some of the varieties of *C. vestita*, such as *rubro-oculata*, have sub-erect or nodding scapes, and they are well adapted for large pans where there is sufficient space for three or four bulbs. Whether pots or pans are chosen they must be filled one-third of their depth with drainage, upon which is placed a thin layer

of sphagnum moss or fibrous loam. The compost is pressed moderately firm, and when the repotting is completed the soil ought to be half an inch or so below the rim, while the new growth should rest upon the surface, and the base of the old bulbs slightly embedded to keep it firm. Directly the repotting is done, remove the plants to a warm moist house, where the temperature does not fall below 65° F. For several weeks very little water is necessary, but when the new growth begins to root freely the supply of water at the base can also be increased, and from this stage frequent and liberal waterings must be applied till the foliage begins to decay.

When the receptacles are well filled with roots, it is a custom with many cultivators to give weak liquid cow manure once a week, and no doubt in many cases it proves most beneficial, not only by increasing the size of the bulb, but also intensifies the colour of the flowers. A little ventilation is essential occasionally, both from the top and bottom ventilators, and enough shade must be provided to prevent the foliage being injured by the sun's rays. As the new pseudo-bulbs approach maturity, and the leaves show signs of turning colour, the surroundings ought not to be kept so moist, water will be needed less frequent, the shading can be dispensed with, and a little more ventilation given. The spikes will then soon appear near the base of the current pseudo-bulbs, and till they are removed the plants should be kept just moist at the base.

After flowering, water must be entirely withheld, and the pseudo-bulbs kept dormant through the winter months by placing them on a shelf where the temperature fluctuates between 55° and 60° F. If the space is required, the bulbs may be taken out of their pots as described above, and stored in a box with a little silver sand around the tuft of old roots.

Insect pests are not very troublesome, and if any are seen, the leaves should be carefully sponged with a weak solution of some reliable insecticide. Regarding vaporising the house, it must be done rather on the weak side, as the foliage may be damaged if the vapour is strong; therefore the safest plan is to fumigate lightly two nights in succession.

Bulbs in Bowls.

By R. M. POLLOCK

To those to whom the luxury of a greenhouse is denied, and whose garden is not of sufficiently large proportions to allow of the growing of such plants as *Garrya elliptica*, *Chimonanthus fragrans*, the common willow, with its silvery catkins, and others, and where the slugs and other destructive creatures are so abundant, that to grow early Irises is only waste of money—even *I. stylosa* is not immune from the ravages of caterpillars—there can be little doubt that bulbs grown in fibre are most welcome.

In an issue of *IRISH GARDENING* which appeared in the autumn some reader remarked that one heard a great deal about what to plant in the way of bulbs, and how to plant, but one never heard of any results. I have grown bulbs in bowls now for four successive years, and I have never yet been disappointed with them. This autumn I took the advice of a well known gardener, and put some of the bowls when planted immediately into the light. This "position" was a very small frame situated in the warmest

corner of a back garden, and the bowls were raised on inverted pots to bring them as close to the glass as possible. The other bowls were put, as I had always done previously, into a dark place (which was a bicycle shed), and stood on a stand, and covered with some old sacking. This shed is supposed to be frost-proof, but it is doubtful. Among these bowls were two full of early single Tulips—Proserpine and Mon Trésor, which according to the catalogues are supposed to flower at the same time. The bowl of Proserpine was put in the dark for five weeks, and is now in full flower, strong and healthy. In the Mon Trésor bowl, which was in the light all the time, the bulbs are now 2 inches high, and the flower buds can only just be felt at the base of the leaves. The same applies to two bowls of ordinary Hyacinths, that taken from the darkness are now stronger and more forward than the other which was in the light. One bowl of Roman Hyacinths and one of the "Tenby" Daffodil I risked no experiments with. Romans at 2s. 3d. per dozen are too dear to play with, and a dozen of these were planted on September 29th; they were in flower on December 16th, and these flowers were only cut from them on the 10th of January. The bowl of

Narcissus obvallaris, the "Tenby" Daffodil, will be in full flower before this is in print. My experience is that as soon as they are removed from the darkness they should, where possible, be kept in a living room—that is, a room where there is a fire and where the atmosphere is kept fairly warm. This, of course, is not very easy to manage, as the bowls take up a considerable amount of space, added to which they must be near the window to get all the light and, we hope, sun. When once in flower they should always be removed when the dusting operations commence, and an occasional watering with a fine rose can, or a sprayer, will freshen them up and wash off all dust collected on the leaves and flowers. The real watering required is very slight. Sometimes the surface of the bulboline or fibre will appear to be dry, but if a little of the surface material be removed, it will probably be found quite moist underneath. Over watering is dangerous to success, as in these bowls, made without any means of drainage, surplus water must lie in the bottom, and will rot the roots. If this has happened it will very soon be detected by the yellow tips of the foliage and poor weak flowers.

Cyclamen.

MUCH has been written lately to various gardening papers about the treatment of this charming flower. Some growers believe it best to sow seeds every year and throw out the plants after they have flowered. I am a strong advocate of growing on the old corms for at least five years. Here we grow a large quantity, and I find that the old corms when properly treated make much finer plants when grouping in a large stove than seedlings. We grow three or four dozen from seeds every year, and discard any corm that has begun to split, but so long as they are smooth and firm there is no fear but that they will make splendid plants if they are well looked after and liberally

treated, and I see no difference in the size of the flowers, although some growers maintain that the young plants produce the largest flowers. The plants shown in the photograph are three years old, and I have never seen plants one year or fifteen months old carrying anything like so many flowers. Twelve of the plants in the group when they were at their best each carried from 180 to 200 fully developed flowers:



(CYCLAMEN GROWN FROM THREE-YEAR OLD CORMS.)

and I do not think it is possible to produce so large a plant in fifteen months from seeds. It stands to reason that a large corm, which often develops four or five flowering crowns, is capable of producing more flowers and foliage than a small bulb with only one crown.

The twelve plants mentioned above were grown in 8-inch pots; the flowers and foliage were all that could be desired; the variety is Sutton's Giant White.

I do not believe in the common practice of drying off the plants when they have finished flowering. Certainly it is better to keep them a little drier at the root, but I do not think it is advisable to dry off altogether; this treatment often causes the bulb to crack, and the plants are difficult to start into growth after the drying off process.

After the flowers are past I feed liberally for about a month, in fact till the leaves begin to turn yellow and drop off naturally; and here I may say that I have measured some of the corms before starting to feed and after feeding was stopped, and have found them to measure as much as half an inch more in circumference, so I have come to the conclusion that it is a serious check to the plant to dry it off completely.

The soil we use for potting is a good sandy loam used as rough as possible, with the addition of one 8-inch pot full of clean wood ashes, one 5-inch pot full of Peruvian guano, and one 1-inch pot full of soot to each barrow load of loam.

They are grown in a shaded frame on an ash bottom all summer, and housed in September. I find that a night temperature of 55° to 60° in winter suits them well. They should be grown on a stage within 18 inches of the glass and frequently syringed until they begin to push up flowers.

Care must be taken not to begin feeding until the pots are well filled with roots, and then it is much better to feed weak and often, than with occasional strong doses.—J. BESANT, Oak Park Gardens, Carlow.

A Holiday Tour.

By J. H. CUMMING.

It has been often remarked that to one keenly interested in gardening the opportunities of a holiday are taken advantage of to see and learn what others are doing. Gardening has no finality. It is indeed possible to improve the beautiful; the progress and improvements that one sees during a holiday is an education from which the wisest may learn something.

Crossing to Glasgow on September 2nd, 1913—it happened that the West of Scotland Horticultural Exhibition was held there that day. Paying it a visit I was pleased to see Dublin well represented in the fruit classes. The principal class in fruit was for eight dishes, and Alderman Bewley, Danum, Rathgar, was placed first in a strong class. For size and colour his pears and apples were far ahead of anything else in the Show. This exhibition, though in a busy city like Glasgow, does not receive the patronage of the public it deserves and which one would expect. Glasgow is well situated for public parks, and some very fine bedding can be seen despite the smoke from numberless chimneys.

Passing on to Perth and Dundee I noted, in the latter city, some flower beds on the shady side of the City Museum planted with single Asters, Mignonette and Heliotrope. This was in a busy and populous district, and the sweet perfume wafted on to the street must have cheered many a weary toiler.

Several days were next spent in East Fifehire. At Naughton, near Wornit, I came across something which was impressed on my notice in subsequent wanderings—the large use of Antirrhinums and other annuals for summer bedding. The geranium-calceolaria-lobelia order is fast disappearing. A grand border at Naughton was made up of Sweet Peas, Dahlias, Salvia Blue Beard and Antirrhinums, tall and medium-sized. The Sweet Peas were specially good, and, though 11 feet high, were clothed with flowers to the ground. Each gardener has his favourite method of manuring and growing Sweet Peas. The gardener at Naughton has his method. He takes out a trench 3 feet deep and fills it up with grass that has been cut in the grounds. Turned and well rotted he finds it an excellent manure for Sweet Peas, and they showed they liked it. I spent a day in the famous Carse of Gowrie, a track of heavy flat land, about 20 miles long by 5 or 6 miles wide. Here there are numerous orchards, each several acres in extent. The trees in a large majority of them are old and worn out.

The grass underneath is invariably grazed by cattle all summer. In the older orchards the varieties of apples are mostly local sorts. Worcester Pearmain is favoured for its selling colour, and for a cooker Warner's King is much grown for its size, it sells well in Dundee, where a great quantity of the fruit goes. The crop is small in size of fruit and only fit for the jam manufacturers, who are the largest purchasers. The growers there unfortunately lack the leading and guidance of a Department as we have it in Ireland. Instruction, too, is at present very meagre. One Horticultural Instructor for the whole of Perthshire—a county of 1,600 square miles in extent—what wonder then many of the orchards in the district are never sprayed and are consequently full of all sorts of insects and disease.

A visit was paid to St. Andrews, known to most people as the home of golf. The ancient city is full of historical associations. Accompanied by friends I had the pleasure of an introduction to Dr. Wilson, Lecturer in Agriculture at the St. Andrew's University. The Scottish Board of Agriculture have their experimental station at St. Andrew's. Dr. Wilson is in charge of this and no more enthusiastic and devoted chief could be found to control such an undertaking. The Doctor had 3,000 varieties of potatoes under trial. Seedlings possessed with a pedigree parentage impossible to remember, yet all tabulated in correct form, were to be seen carefully tended in frames. In the open fields, varieties that have some promise of a future are given a fair trial, and thus weeded down to what constitutes a disease resister, cropper, and all that is required in a first-class potato. The turnip is another crop that receives much attention, some thirty sorts being under trial in one field. Oats also receive attention with successful results. The culinary pea has also an energetic improver in Dr. Wilson. We saw some of his latest results, of which we may hear in the future. The dry summer had not been kind to the growth of many of his specialities, and without severe testing in different seasons nothing is passed out as superior to what is already on the market.

The Standard Bearer of Scotland is Mr. Wedderburn, and owns an estate called Birkhill, in Fifehire. I paid it a visit specially to see an old yew hedge surrounding what was once an orchard. It is some 600 years old. The spread of branches at the base is 50 feet in diameter and the height 70 feet. No trimming is done, and the growth is still vigorous and healthy.

My next place of call was in Midlothian. The public roads in that county are considered very well made and are kept in first class condition. Gardeners are interested in road making, and as I was fortunate in seeing the repairs going on in that county, I here give the method followed:—Three inches of rough metal was spread on the road, then steam rolled; a coat of boiling distilled tar was poured over the metal, then a covering of small chips; this was again rolled. Another spraying of distilled tar was applied and another covering of chips, which was finally rolled to a smooth surface. I was informed the cost was about 4s. per super. yard.

The Royal Caledonian Horticultural Exhibition, held in Edinburgh each September, attracts a big entry, and numerous visitors from throughout the United Kingdom. This year herbaceous cut flowers appeared better than ever. It was

indeed the feature of the Show. Hardy fruit bore evidence of the dry summer, both in quality and quantity, apples and pears not being good in Scotland this year. The Scottish Department of Horticulture had an interesting exhibit of bottled fruits. The type of bottle is different from that recommended by our Irish Department. The former use a wider-mouthed bottle. The lid is of glass on a rubber ring and, while perfectly air-tight, is easily opened. The wide mouth allows whole fruits of peaches, apricots, and even tomatoes to be preserved.

While in the Edinburgh neighbourhood, with some friends, I paid a visit to Hopetown House, the home of the Marquis of Hopetown. It is a princely place about two miles from the famous Forth Bridge and overlooking three miles of river, the new Naval Base at Rosyth, where 9,000 men are working. Bedding at Hopetown is done very extensively, but it is done mostly with annuals raised in spring. A very telling border was planted in panels with red and blue Larkspurs. The back of it was seedling Hollyhocks and the front a mass of Verbenas. Another long border was gay with dwarf Phloxes in lines of different colours, a specially good one in the front line being *Regulus*, a rosy salmon. A border entirely of blue was something unique. It was planted with blue Sweet Peas, *Salvia patens* and Blue Beard, *Verbena venosa*, *Ageratum*, and *Nigella Miss Jekyll*. The Rose garden is a geometrical one, the beds being cut out in grass. Each bed is planted with one variety of Rose, and all the beds are carpeted over with *Viola Kitty Bell*, a pale lavender, which gave the garden a quite beautiful appearance. An adjoining border was filled with Carnations, two varieties especially being the best I have yet seen of their kind—King Edward is scarlet and Duchess of Rothsay is a pure white. Both are perfect in form, vigorous growers and are invaluable border sorts. Time did not permit of seeing all there was to be seen in this magnificent place, but it was strongly impressed upon us that flowers were grown here to interest and give pleasure at every turn. Carpet designs and firework displays in gardening are not attempted.

Returning to Perthshire I noted at Grantully Castle Gardens the idea again of flower borders in one colour. In this case it was a yellow border planted entirely of Morning Star *Chrysanthemum*. Another wide border presented the British colours of red, white and blue. It was planted with a broad band each of a red Antirrhinum, a white Antirrhinum and as a blue, *Salvia patens* was used. Here also I noticed a grand batch of American Carnations. They were the young plants which flowered under glass last year. In April they were planted out, and at the beginning of September were full of flower and being potted up to again flower inside.

Most of my readers have heard of Andrew Carnegie and his native town of Dunfermline. He invested a sum of money which yields £16,000 per year, and this is all spent yearly in Dunfermline. Libraries, Schools, Institutes, Baths, Tennis and Bowling Greens are all provided for the people of this favoured town. Pittencrieff, an estate adjoining the town, was bought up some years ago and laid out as a public park for the use of the inhabitants. Not a penny of taxes is levied for all this. The park has been carefully planned to accommodate the public convenience and also preserve the natural beauties of the place. What formerly was the walled-in kitchen garden had the walls removed and all

laid out as a flower garden. To give an idea of what is required for a spring display alone, 100,000 plants are annually put down in October. All kinds of plants are pressed into the service of making a continuous display of flower. Masses of Pentstemons, Phloxes, Montbretias, and Dahlias make a great show in the borders, and all suitable herbaceous plants are largely grown. Roses in big beds of one sort were very gay, and here I was informed the rose most favoured for a continuous show was *La Tosca*, a soft pink, tinted with rosy-white and yellow. Among dwarf Polyantha roses Baby Dorothy is being replaced by Orleans, an excellent kind for bedding or masses, and of a beautiful crimson colour. Jessie is another ideal bedding rose, a free bloomer which lasts well and also is crimson in colour. A range of glasshouses serves to keep up a display of flowers during winter, and indeed more or less all the year round.

Hamamelis mollis.

WHEN with a friend visiting a garden one calm afternoon in January our attention was drawn towards this shrub by its sweet scent when several yards away, and even before we caught sight of it in the shrubbery. Until then I was under the impression that this *Hamamelis* lacked the charm of fragrance peculiar to other winter flowering shrubs like the Winter Sweet and Standish's Honeysuckle.

This soft-leaved Witch Hazel is quite the finest of the family and distinct both in leaf and flower, and can always be relied upon to flower about the end of December or January.

The flowers are borne freely in clusters, the calyx is red, and the petals are a soft yellow, strap-shaped and hooked at the ends, not twisted like the flowers of other Witch Hazels.

The leaves are oval, larger than those of any other member of the genus, sometimes 1 to 5 inches long and covered with soft greyish hairs, the specific name being derived from this character.

Hamamelis mollis is said to grow 20 to 30 feet high in China, and is quite hardy, while the flowers are rarely affected by frost. The soil to plant in is a good loam mixed with a small quantity of peat. DUBLIN.

Tamarisks

THESE hardy shrubs are seen at their best when planted in small groups, where their light and feathery growth will be an attraction through the summer and autumn.

At seaside gardens they may be used for shelter, for their natural home is by the seashores of Britain and other countries.

At Llandudno the common kind *Tamarix gallica* is used with good effect as an ornamental hedge, while to cover banks it is also very suitable.

As a decorative shrub *Tamarix hispida aestivalis*, or *T. Pallasi rosea*, as it is sometimes called, is quite one of the most graceful and pretty shrubs which flowers in August. The flowers are pale pink on opening, turning to a deeper pink. When arranged in a vase the feathery plumes remind one of the beautiful pink *Spiraea Queen Alexandra*.

The name *Tamarix* is taken from the Tamaris, a river in Spain, on the banks of which the Tamarisk abounds.

Some species produce galls which have been used in medicine as an astringent, the ashes of others contain much sulphate of soda.

A Search for Alpines in the Granite Region of the Maritime Alps.

ONE can get to the Maritimes by going to Nice or Ventimiglia and journey northwards, or by the over-land route *via* Paris and Turin. The latter way being the quicker was chosen, and Mr. H. McClenaghan and I arrived at Turin on Sunday, 11th August, 1913. A slow train carried us to Cuneo along the base of the Cottian Alps. From the window one sees Monte Viso, a lofty solitary peak 12,600 feet high, its grandeur accentuated by the lesser heights of its neighbours.

At Cuneo we slept the night, or at least got as much rest as a noisy fête held under the hotel windows would allow.

If economically inclined one can take the rickety post omnibus which carries one to the Valdieri Baths in about five hours. At first the road is dry, dusty and uninteresting as far as the tram runs—to Borgo San Dalmazzo. When Valdieri is reached, progress is slow, for the road ascends continuously along the valley of the Gesso river. One passes

the King's hunting lodge at Saint Anna; the stream thunders down between huge granite rocks, and the scenery is wild and rugged, until we reach the Baths, 4416 feet high. The Valdieri Baths are noted for the sulphurous and saline springs and a singular flowerless plant (*Uva labyrinthiformis*) with healing properties. The large solitary hotel is open from July to September.

The flora of the district is rich, and includes such plants as *Anthriscum Liliastrium*, *Lilium bulbiferum*, *Achillea Herbarota*, *Primulas*, &c. Along the Valletta glen we took an afternoon stroll; the mountain side must have been a sheet of pink some two months earlier, judging by the numerous seed pods of *Lychnis Flos-jovis*. In moist boggy places, *Saxifraga aizoides* and *Pinguiculas* were flowering; by the mountain streams *Gardamine asarifolia* was producing rather weedy-looking white flowers, but the round glossy *Asarum*-like leaves are handsome. In turfey soil not far away *Gentiana punctata* threw up flower stems 2 feet high; the yellow-spotted flowers are decidedly uncommon looking.

The Parsley fern grows luxuriantly among the stones in company with *Asplenium septentrionale*, with its thread-like fronds. The beautiful *Dianthus neglectus* is plentiful in this glen, and was still in flower; its pink flowers with their buff under surface are always attractive. It is variable both in colour and form of petals. Another variable plant is *Potentilla Valderia*; some of the better forms have leaves of a pure glistening silver, while others are dull, even when growing side by side, so that it cannot be a question of soil, but of seedling variation. The good forms of this plant are well worth cultivating for their foliage, although the flowers are poor with small white petals.

Higher up we met with *Senecio Doronicum*, still in flower, and the fluffy heads of seed of the Alpine *Anemone*; growing higher still in tight crevices of the solid granite rock was *Senecio incanus*, also known as *S. Persoonii*. In such places where one would expect the plants to be

burnt up by the hot scorching sun, the elegant leaves assume a whiteness probably unrivalled by any Alpine plant and the yellow flowers are freely produced. After seeing this plant in a wild state I am convinced that the place for it is a crevice between stones or in the wall garden. Our object in coming to Valdieri was to collect seed of the



Photo by]

THE CIRIEGA PASS IN AUGUST

[C.F.B.]

Where *Viola mummulaifolia*, *Saxifraga retusa*, &c., are to be found.

rare *Viola Valderia*. Receiving instructions (possibly well meant) at the hotel as to its whereabouts, we started off in the morning. The path led up the hill side, and was soon lost in thickets of the Alpine *Laburnum*, which here ascends beyond the limits of all other deciduous trees, and covers whole mountain sides. After an hour of a rather trying time the *Laburnum* grove finished at the edge of a precipice with a deep drop of some hundreds of feet, so, more warm than pleased, we scrambled downwards and came to a dry river bed. Among the tumbled stones were numbers of *Houseleeks* and *Sedums* and large mats of the *Cobweb Sempervivum*. In the poor stony ground the Alpine lettuce (*Lactuca perennis*) with its blue flowers was quite a dwarf and pretty plant; the same applies to the deep-rooted *Epilobium Fleischeri*, or *Dodonæi*, with pink flowers, and *Scabiosa holosericea* with its grey leaves and pink flowers. However, time would not permit of a long delay here, so we proceeded on to a place where we had already noted a single plant of *Viola Valderia*. After a time a steep

stony bank rewarded our search, but unfortunately the pods had already opened their boat-like segments and shot away their seeds, and after searching over hundreds of plants the harvest of seed was small, and to make matters worse a terrific thunderstorm of several hours' duration did not improve our spirits. *Viola Valderia* has downy gray-green leaves, which when growing one might easily mistake for a *Campanula*: they are entire, long and narrow: although the flowers are not brilliant, yet there is something about them which appeals most strongly. They are true little Pansies of a reddish-lilac colour, with bright yellow eyes and petals bearded at the centre like most of their set. This Pansy will require moraine treatment, or possibly it will do in soil and grit in equal parts, but seemingly it will need a deep root-run, for from one main root a perfect network of fibres descends to a foot or more in depth.

On returning to the hotel we were just in time to see the King of Italy step into his motor after a walk along the Valasco Glen.

A guide was chartered for the following day to cross over the Ciriaga Pass to the Boreon Valley, just above St. Martin Vesubie and we arranged with the proprietor of the hotel to start at four in the morning with breakfast before starting. Four o'clock came but no breakfast.

After exploring the hotel we managed to get a roll and some milk, and set out for our long tramp, our object being to visit the home of that rare and difficult plant *Saxifraga florulenta* and also *Viola nummularifolia*. This granitic region is the only known place where *S. florulenta* grows wild, on such high peaks as the Argentera, Mont Matteo, Ciriaga Col delle Finestre, and according to our guide a few other crags. The morning was dark, cold and dreary as we left the huge Valderia Hotel, so beautifully situated in the glen among the beech woods. Following the roaring Gesso river, turning up the Valley of Valletta, tramping for miles along an easy path, in front, growing bigger and nearer very slowly, lay the high blank wall of the Ciriaga. The base of the rock looked dark and black, and above this a wall of snow. At the base one sees the Alpine *Rhododendron* already bearing seed pods; climbing steadily, but surely, higher and higher one comes again across it just opening its flowers where the snow has recently melted. Among the stony parts one sees colonies of a queer thistle with whitish bracts. It grows

about a foot to eighteen inches high, and is known as *Cirsium spinosissimum*. *Adenostyles leucophylla* covers a good stretch, and when its leaves are young makes quite a silvery carpet. Later on, when bearing pink blossoms, it seems a coarser plant, although by mountain streams it looks effective. Here and there among huge tumbled boulders is *Saxifraga pedemontana*. The large luscious green rosettes of this mossy *Saxifraga* are always attractive, and appeal to me more than any of its section when not in flower. The flowers are produced on branching stems, but are a trifle thin and narrow in petal. At home *Saxifraga bryoides* is very scant and sparse with its flowers, but at this height it mimics a *Kabschia*, forming tight little cushions covered with dainty whitish flowers spotted with red, on stems about 2 inches high. Possibly it wants moraine treatment to induce it to flower freely. The

higher Gentians are here forming seed pods with the Alpine *Anemones* by their side. The *Doronicum* still raises its golden head, and *Viola calcarata* varies from yellow, white to purple blue. Leaving the rocks we step on to the snow covered pass of the Ciriaga, we plod on steadily over the frozen snow by a zig-zag path. The snow rises gradually in seemingly never ending terraces. Leaving the path we examine plants on the side



PRIMULA INVOLUCRATA AT MOUNT USHER, CO. WICKLOW.

of the rock, but find the ground frozen almost as hard as the granite, for the sun has not risen above the walls of mountain which surround this gorge.

(To be continued)

C. F. B.

Primula involucrata

THIS beautiful Himalayan species loves to be in the vicinity of water, and nowhere have we seen it better than in Mr. Walpole's favoured garden at Mount Usher in Co. Wicklow. Planted by the side of a small stream in a colony it bears freely at the end of April and into May sweet-scented flowers raised on stems a foot high.

Although by water its highest development is seen, yet it may be grown on the rockery if a cool position is chosen, but a smaller stature is attained than when growing by water. The root-stock is similar to that of the "Pilewort," the narrowly oblong leaves are a shining smooth green, while the flowers are white tinted with lilac, nearly an inch across, with round corolla lobes, and borne in umbels. *P. involucrata* Munro is a variety with flowers suffused with blue.

A Few Good Peas.

IN writing these few notes on this most important vegetable I will only deal with the varieties I have given a fair trial, either in the demonstration plots in Co. Kildare or the school garden at Naas. In order to be successful in the growing of this vegetable a thorough cultivation of the soil is necessary, and the easiest way to secure for plants the soil conditions that best suit them is to cultivate deeply either by digging or trenching, but as the writer of the Month's Work in the Vegetable Garden column will deal with methods of cultivation, I will only say a few words on varieties.

If very early peas are required and autumn sowing in October or early November is practised, I would sow William I., as I find it very hardy, and it turns in early. For early spring sowing select Multiple and Pilot: the last-named is a grand pea, but in heavy soils should not be sown too early or many of the peas will decay. Gradus is a grand early marrowfat pea, but in heavy soils should not be sown before the end of February. Another good pea is Early Bountiful, a grand cropper, but not so early as the others mentioned, so that for early pulling I would grow William I. autumn sown, Pilot and Gradus to follow in order named. All grow about 3½ feet high, or with very good culture 4 feet. As a second early variety I would grow Senator, 3 feet high, which I find the best and heaviest cropping pea in cultivation for private use or growing for market: the pods are only medium size and a light colour, so it is not much use for exhibition. Alderman and Quite Content being best for this purpose for early shows, and Gladstone for late shows. To follow Senator, sow Eureka, one of the most useful peas raised by Sutton & Sons, and now a long time in commerce; it is an immense cropper, but again the pods are only medium size and a light colour. When cooked the flavour is delicious: many experts consider it the best flavoured pea.

For late use Gladstone and Reregard are about the best, but care must be taken that the seed is sown in good time, as late sowing is often the cause of failure. I have tried many other good peas, such as Webb's King George V., Webb's Champion and Webb's Stourbridge Marrow, three varieties hard to beat for size of pod and cropping qualities. The three best dwarf peas are Webb's Little Marvel, New Surprise for early use, and Carter's Daisy for mid-season.

WM. TYNDALL.



SPRAYING FRUIT TREES WITH LIME-SULPHUR WASH

FROM the results of a second year's experiment as to the efficacy of lime-sulphur wash against the diseases of fruit trees (peach, apple, pear), the writer recommends this wash as a successful means of controlling leaf-curl of peaches (*Exoascus deformans*) and apple scab (*Venturia inaequalis*). In order to obtain good results, the mixture must be applied three times—(a) just before flowering; (b) when the blooms are falling; (c) three weeks later.—From the *Monthly Bulletin of Agricultural Intelligence and Plant Diseases*.

The Month's Work.

The Flower Garden.

By WM. G. WADGE, Gardener to Lady O'Neill, Shane's Castle, Antrim.



LENGTHENING days bring additional duties in the flower garden. It is very important that the work be kept well in hand, every week bringing with it fresh work. Much may be done by a good method of organising the work and the labour at command by the man in charge, but with bad weather and other adverse circumstances it is sometimes impossible to do all the work just at the time we would wish. Push on all outside work when the weather is favourable, let any inside jobs stand over, even if it is a favourite date for doing them. There will be plenty of bad days during the month when these things can be done. Arrange that any necessary wheeling on walks be done when they are dry or when hard through frost. If done when they are soft it entails further labour getting them back into good condition again. Dig the ground in shrubberies, leaving the surface rough, it may be raked down later when wind and frost have acted on the soil: of course discretion must be exercised in digging, not to dig deeply near to the shrubs, especially such as are surface-rooting. Strong-growing shrubs that have been

planted as screens, either to hide some unsightly object or to break the force of the wind, and are not subject to an annual pruning, may have got out of bounds. Attend to any such now. Cut the branches back to the desired height, and tie in a few suitable pieces with tar cord to hide any bare stems. This work and the cutting of ivy on walls may be done when weather and soil are not suitable for ground work. Get a heap of soil ready under cover, consisting of loam, leaf-mould and sand. This will be found suitable for potting most of the bedding plants, also for seed sowing and for cuttings, with a more liberal addition of sand. See that sufficient boxes are at hand for seeds and cuttings, and that flower pots are clean, ready for use. Lawn mowers should be overhauled and any necessary repairs attended to.

BEDS AND BORDERS.—Complete any necessary work in the herbaceous borders. Where these have been trenched and replanted in recent years, deep digging between the plants and working in some rotten manure will suffice now. Montbretias that have been wintered in a cold frame can now be planted. Pick out the strongest corms, and plant them in small bunches of 3 or 4 at 6 inches apart, and cover with a few inches of soil. Where these are left in the open ground through the winter they should be lifted and divided annually, or there will be much leafage and little flower resulting. This is the month to plant *Ranunculus*. Allow 8 inches between the tubers and plant 2 inches deep. The claw-like tubers are very easily broken, being very brittle,

DAHLIAS.—Roots of these should be examined, and any varieties that it is desirable to increase may be placed in gentle heat to throw up cuttings. Cover the roots with 2 inches of fine soil. The first shoots do not as a rule root so readily as the later ones, so that the earliest shoots should be cut back unless very scarce. *Salvia patens* may be treated the same as Dahlias. Shake out Cannas, repot, and divide some if an increase is needed.

SEED-SOWING.—Seeds of Larkspurs, Scabious, *Statice Suworowi*, *Perilla nankinensis*, *Nicotianas*, *Lobelia*, and other annuals that require a long season of growth should now be sown. East Lothian stocks sown last month must be pricked off while quite small, 2 inches apart. *Begonia* seedlings need careful handling. Prick them off into boxes or pans in the house in which they are growing, the seedlings are so tiny they cannot be handled singly. The operation is best done with a pointed stick or two sticks. Sweet Peas are usually sown in October for exhibition purposes, but for garden decoration February is a good time. Sow them thinly in boxes, let the seeds be at least an inch apart each way. Boxes are more easily handled than pots, and the plants can be kept in a more uniform state of moisture; if lifted carefully at planting time the roots need not be damaged to any extent. Keep the plants from autumn sown seeds hardy; a little support is now necessary, and when the weather is mild they should be divided and potted singly. Even if they were sown singly, they will be benefited if some of the old soil is removed, and a little fresh added.

POTTING BEDDING PLANTS.—*Geraniums* should now be shaken out of the cutting boxes and potted singly into 4-inch pots: they will require a warmer house after potting, one having a temperature of about 60° will be suitable until they are rooting freely. If the supply of pots is limited some of the plants can be mossed. Place a piece of moss flat on one hand, cover this with soil, then place the roots on this, draw the moss up and around it and secure with a piece of matting. The mossed plants should be returned to the cutting boxes and the spaces between filled with soil. Young plants of *Fuchsias* rooted in the autumn will now need a larger pot, and they should be kept growing steadily. Large standard and pyramid plants that have been rested by withholding water, prune into shape, place them in a warm house, and syringe daily to encourage them to break freely. The stock of *Begonia* tubers must be examined, and the sound ones started into growth, either laid out in boxes, or on the border of a fruit house; do not cover with soil till the growing bud appears, and it can be made certain that all the tubers are right side up, then shake a little light soil over them.

The Fruit Garden.

By PETER BROCK, Horticultural Instructor
for Co. Fermanagh.

THE weather is the principal factor in controlling work on the land at this season. The snap of frost at the close of the year permitted the carting of farm-yard manure on to tillage and grass land to be done to the best advantage.

PRUNING OLD OR ESTABLISHED APPLE TREES.—The season of 1913 will be remembered by many

apple growers on account of the abnormal development of fungoid diseases such as leaf-spot or scab, canker, and brown rot on varieties that had previously been comparatively healthy, and under favourable conditions were recognised as good doers. The varieties that have suffered most are Lord Derby, James Grieve, Early Victoria, and in some places Lane's Prince Albert. Bramley and Grenadier, although not immune, are not yet so seriously affected. The spotting and premature dropping of the leaves, and the branches dying from the extremities back into two-year old, and in some very bad cases into three and four-year old wood, is typical of how some trees of the above mentioned varieties have fared. Spraying as a remedy while the dead twigs or branches remain on the trees is nothing short of the purest waste of time and material, and is, in fact, like "threshing the wind." All dead or dying branches should be cut back to sound wood, where no trace of discoloration is shown at the core. All such prunings of diseased twigs or branches should be collected as the work goes on and immediately burnt. Any knife or secateurs used on such diseased trees should be disinfected with a cloth damped with paraffin or other disinfectant before being again used for cutting healthy trees. There is ample evidence that some of the neglected and worn-out orchards of local sorts such as Eight-square and Dido, are largely responsible for the propagation of fungoid diseases that are threatening the very existence of the more modern orchard. The time seems to be within measurable distance when legislation will be absolutely necessary to compel the burning of or otherwise treating such hotbeds of disease.

WINTER SPRAYING.—This will demand constant attention on calm, dry days till completed, especially in mixed plantations where gooseberries are grown as an undercrop between apples, as, owing to the mild and spring-like weather in December and part of this month, the buds may soon be too far advanced to permit of safely spraying overhead trees with copper sulphate or caustic solution washes. If the mild weather continues, pears and plums—especially in early districts—may also soon be too far advanced for winter spraying. There is a wide range of winter washes that keep the bark in a clean and healthy condition, and act as a fungicide as well. Any spray or wash to be effective should be applied under a high pressure and from a small nozzle, and every twig and crevice on the tree thoroughly damped.

PLANTING.—The land has been in such good condition for planting fruit-trees and bushes on several occasions this winter, especially at the close of the year and of late, that this work should now be completed. If, however, some may still be in arrears, it should be pushed forward on every favourable opportunity when the soil is in suitable condition and does not clog on the tools.

GOOSEBERRY SAWFLY.—Where this pest is known to exist remove about two and a half inches of the surface soil with a draw-hoe from beneath the bushes and to one foot beyond the spread of the branches. This soil will contain nearly all the cocoons, and should be buried to a depth of 8 or 9 inches below the surface, either between the bushes, or taken to some adjacent vegetable ground and placed in the bottom of a trench. Replace the soil removed with other good rich soil.

PREPARATION FOR GRAFTING.—Unprofitable varieties, but otherwise sound and vigorous trees, can be turned to good account by re-grafting. The heads of such trees should now be cut off to a point near where they can be re-grafted with a more profitable sort. Cut well below any canker wounds, and as far as possible leave the arms so that a well-furnished new head may be quickly produced. The scions for grafting, if not already secured, should be taken off early this month and heeled in some shady, damp corner, such as along the north side of a wall or bank where they will keep fresh till required. Choose for scions well developed and ripened shoots of last year's growth. Two essential conditions to success in grafting are that the scions should be dormant and the sap rising in the stock when the operation is performed.

SEASONABLE CULTIVATION.—With the land in suitable condition the cultivation of the space allotted to vegetable or such like crops between the trees should be dealt with on every favourable opportunity till completed. Fruit trees and bushes, like animated nature, derive great benefit from a change of food. Trees on what may be considered good land may show a lack of vitality, which may arise from a sour or inert condition of the soil through getting too much of one particular kind of plant food. In many cases a dressing of about one and a half tons of lime to the statute acre would put new vigour into such trees; or if lime had been applied say three years ago, and farmyard manure last year, 8 cwt. of potassic superphosphate per statute acre would be a suitable change. This dressing will give best results when followed with light dressings of nitrate of soda or sulphate of ammonia when the trees start into growth. All digging among fruit trees or bushes should be carefully done with a digging fork. In applying well-rotted farmyard manure to trees or bushes bury a portion of it slightly in advance of the roots so as to coax them along. On no account should a spade be employed by a careless man for digging among fruit trees and bushes, as considerable damage may be done to the fibrous root system, thereby leaving the tree to depend on deeper acting roots and laying the foundation of unfruitfulness.

ORCHARDS IN GRASS.—Attend to manuring and widening the stations to meet the requirements of the trees. It is false economy not to give plenty of room, as so many light vegetable crops, such as dwarf peas and early potatoes, can be profitably grown on the outer edge of such beds, and the cultivation of such crops is generally sufficient to maintain a sound and vigorous growth in the trees.

The Vegetable Garden.

By ARTHUR HORTON, Gardener to Colonel Claude Cane, St. Wolstan's, Celbridge.

FEBRUARY is generally a very changeable month as regards the weather, and is often the wettest month of the whole year, consequently it is very difficult to get on with outside work, but no opportunity should be missed to forward the digging and trenching as advised in last month's notes.

SEED SOWING: PARSNIPS.—As the seed of this vegetable takes a long time to germinate, advan-

tage should be taken of the first good day to get in the seed. The ground for this crop should be deeply trenched, but not manured; drills should be drawn about 1½ inches deep and 18 inches apart. Where exhibition specimens are required holes will have to be bored at least 3 feet deep and filled with a suitable mixture of loam, leaf-mould and sand in about equal proportions, and all put through a ¼-inch sieve. Most people find it more difficult to grow perfect specimens of parsnips and carrots than any other vegetable, but an enthusiastic grower will overcome the difficulty.

ONIONS.—Any time after the 20th of this month summer onions may be sown when the ground is in a favourable condition. Fork over the ground thoroughly, breaking up the lumps as small as possible. A good sprinkling of wood ashes, lime and soot spread over the ground and raked in will be very beneficial. Make the ground firm by treading or rolling. The drills should be 10 to 12 inches apart, 12 for preference. After the seed is sown draw in the soil with the feet or the back of a wooden rake, and finish off with a steel rake the same way as the drills are running.

JERUSALEM ARTICHOKEs should be planted during this month. If the ground is already dug or trenched, drills may be drawn the same as for potatoes, at 3 feet apart, giving a distance of 2 feet between the tubers.

PEAS.—Many methods are practised for the earliest supplies of this popular vegetable. Some people make their first sowing outside in autumn, while others prefer waiting until February and sowing in pots, strips of turf or boxes. Personally I much prefer the latter method, as less risks are run of loss by rats, mice and birds. Ordinary cutting boxes 3½ or 1 inches deep are very suitable for this purpose, and are equally as good, if not preferable, to pots or strips of turf, as much less room is taken up by boxes, which is a great consideration in most establishments at this period of the year. Place about 1 inch of any rough material in the bottom of the boxes, then fill up to about 1½ inches from the top, and sow evenly, but not too thickly, and finally cover with one inch of fine soil. An early peach house orinery will be found suitable for starting them, but at no time must they be forced. As soon as they are well above the soil place the boxes in a cool, airy structure near the glass, and harden off gradually. When possible a south or west border should be reserved for the first planting, and should be deeply trenched and manured. Where labour is scarce and manure limited a good plan is to dig out trenches at least two spadings deep, placing a good layer of manure in the bottom and another between the first and second spading; this is best carried out some time previous to the time of planting or sowing to allow the soil to settle down. This not only applies to early peas but also to successional crops, and if carried out good results are sure to follow.

BROAD BEANS.—Where broad beans are used a few should be sown in boxes the same as advised for peas, and will be ready for use at least a fortnight before the first outside sowing.

SHALLOTS.—Any time during the present month shallots should be planted. Choose a rich piece of ground and plant in lines 1 foot apart and about 9 inches between the sets; press down the sets with the thumb and finger to about half their depth, and make as firm as possible.

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EDITED BY C. F. BALL.

Mendelism.

SECOND PAPER.

BY PROFESSOR JAMES WILSON, M.A.

In last month's number of IRISH GARDENING a short account of Mendel's original experiments was given, in which it was shown that :—

i. When the original parents differed in one pair of characters their hybrids produced two types of progeny which were numerically in the ratio 3 : 1.

ii. When the original parents differed in two pairs of characters their hybrids produced four types of progeny, which were numerically in the ratio 9 : 3 : 3 : 1.

iii. When the original parents differed in three pairs of characters their hybrids produced eight types of progeny, which were numerically in the ratio 27 : 9 : 9 : 9 : 3 : 3 : 3 : 1.

It was also shown that the different pairs of characters bred independently of each other.

There was one other very important point brought out in Mendel's experiments which we shall deal with now. It was that among the progeny of all the hybrids bred from, whether there were two types, four types, or eight types, there were always equal numbers of individuals which bred true in each type.

Consider what was found in the case when the original parents differed in the shape of the seed only. The hybrids had all round seed : none had wrinkled ; but in the next generation wrinkled seed appeared again in such numbers that they were a third as many as the round seed. The actual numbers were—round 5,474 and wrinkled 1,850. That is to say, there were 5,474 seeds like one grandparent and 1,850 like the other.

Mendel then put the question : How would these seeds breed ? To find an answer he sowed a number of each kind, and so produced another generation. From this generation he found that all the recessives bred true, but that only a third of the dominants did so. He also put the same question to all the other six sets of experiments and always got the same answer. A third of the second generation dominants always bred true and the whole of the recessives.

As this point is very important and needs to be impressed upon us, we shall give Mendel's

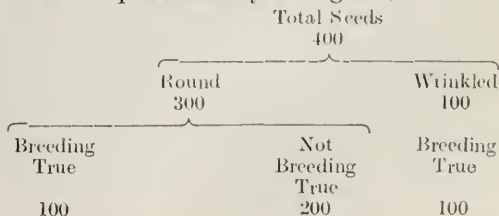
actual figures. He does not say how many recessives he grew ; but, as all bred true, there was no need for him to say. The following table gives the numbers of second generation dominants sown and the numbers which bred true :—

	Total Numbers bred from	Numbers which bred true
(1) Seeds round	565	193
(2) Seeds with yellow albumen	519	166
(3) Seeds with coloured seed-coat	100	36
(4) Plants with plain pods	100	29
(5) Plants with yellow unripe pods	100	40
(6) Plants with axial flowers	100	33
(7) Plants with long stems	100	28

It will be noticed that in every case practically a third of the individuals sown bred true. The remainder bred like their hybrid parents. They were hybrids also.

But this leads to a most important consideration. The total number of dominants in the second hybrid generation is three times as many as the number which breed true. The same total number is also three times as many as the total number of recessives in the same generation. But all the recessives breed true. Thus the numbers of dominants and recessives which breed true are the same. Otherwise : the numbers of individuals in each of the two second generation groups which breed true are the same.

For example, if a second generation from pure round seeds, on the one hand, and wrinkled seeds on the other contain in all 400 seeds, 300 would be round and 100 wrinkled. All the wrinkled seeds would breed true ; but, at the same time, only a third of the round seeds—viz., 100—would breed true. This result may be made clearer if represented by a diagram, thus :—



But this leads to the crucial observation. Both these kinds of true breeding seeds are the progeny of the hybrids. Thus, when their parents differ in one pair of characters, the hybrids produce two kinds of progeny, each of which contains equal numbers of individuals which breed true.

The same observation can be made with regard to Mendel's experiments when the original parents differed in two pairs of characters. The original parents were round with yellow albumen, on the one hand, and wrinkled with green albumen on the other. The hybrids were all round with yellow albumen; but they produced four kinds of progeny, and when these were bred into another generation, each kind was found to contain equal numbers which breed true. The full statement is as follows:—

Original) Round with yellow albumen and wrinkled
Parents) with green albumen.

Hybrids ... Round with yellow albumen.				
Second Generation	Round with Yellow Albumen	Round with Green Albumen	Wrinkled with Yellow Albumen	Wrinkled with Green Albumen
Numbers grown to a third generation	315	108	101	32
Numbers which bred true	301	102	96	30
	38	35	28	30

A similar result was found when the original parents differed in three pairs of characters. Eight groups were produced numerically in the ratio 27:9:9:9:3:3:3:1. The original parents were round, with yellow albumen and coloured seed coat, on the one hand, and wrinkled, with green albumen and white seed coat, on the other. It will save space in displaying the full statement if we write the initial letters of the characters for the characters themselves. Thus R = round, w = wrinkled; Y = yellow; g = green; C = coloured, and wh = white.

Original Parents		RYC and wge.							
Hybrids		RYC							
Second Generation		R Y C	R Y wh	R g C	w Y C	R g wh	w Y wh	w g C	w g wh
Numbers grown into a third generation		269	98	86	88	27	34	30	7
Numbers which bred true		269	98	86	88	27	34	30	7
		8	14	9	8	11	10	10	7

Thus in these two cases, in which the original parents differed in two and three pairs of characters, we have the hybrids producing four types in the first case and eight in the second, and in both cases equal numbers of true breeding individuals were found of every type.

The main results of Mendel's experiments may now be summed up thus:—

(1) The number of types or kinds the hybrids produce are doubled with every additional pair of characters in which their parents differ, thus:—

Differing pairs of characters : 1, 2, 3, 4, 5, ...
Number of types produced : 2, 4, 8, 16, 32, ...

(2) The numbers in each type increase in mathematical ratio, as the differing pairs of characters increase, thus:—

In one pair 3 : 1
For two pairs 9 : 3 : 3 : 1
For three pairs 27 : 9 : 9 : 9 : 3 : 3 : 3 : 1
and so on.

(3) Among every type produced by any one set of hybrids, equal numbers of pure breeding individuals are found.

The next part of Mendel's work was to formulate a theory which should explain these phenomena. We shall put his argument in abbreviated and slightly different form. Mendel laid more stress on some other observations which have not been mentioned here, as it requires more than an ordinary amount of mathematics to follow them. Besides the observation of equal numbers of true-breeding individuals in every type suggests the theory so pointedly that it may be laid hold of specially with advantage. Mendel's statement then becomes:—

i. Pure species produce pure-breeding forms.

They must therefore be furnished with the materials for doing so.

ii. Hybrids also produce pure-breeding forms.

Therefore they also must be furnished with the materials for doing so.

iii. Hybrids produce equal numbers of pure-breeding individuals in every type.

Therefore they must be furnished with equal numbers of the materials for the production of the characters borne by their true-breeding progeny.

Next month we shall discuss the experiments by which Mendel proved his theory.

Clematis jouiniana.

Annuals for the Rockery.

THIS is quite one of the best of our autumn climbers, commencing to flower in September and continuing throughout October. It is equally effective on an old tree, trellis, or climbing over a hedge, and where plenty of space is available it may be allowed to ramble at its own sweet will, for no pruning is required. On trellis work where space is limited the rods may occasionally be thinned out, for it is a strong grower and in good ordinary soil there is no difficulty attending its culture, or trouble from dying off.

The flowers are white, tinged on the outside with lilac, scarcely more than an inch across, but they are borne both at the ends of the branches and in the axils of the leaves, so that beautiful long spray-like growths are formed, a sweet scent adding to their charm.

The leaves are large for a Clematis, of a deep lustrous green.

For some years this plant has been listed in British catalogues as *C. grata*, a native of Himalaya, rarely cultivated. Its proper name has been established as *C. jouiniana*, and it is supposed to be a hybrid of Continental origin, between the well-known Old Man's Beard or Traveller's Joy (*C. Vitalba*) and the Chinese *C. Davidiana*, which is almost herbaceous, but from appearances and time of flowering *C. paniculata* seems a more likely parent than the Traveller's Joy Clematis.

At Nancy *C. jouiniana* has been crossed by *C. Davidiana*, and as a result Messrs. Lemoine et Fils are offering some fine new hybrid Clematis of herbaceous habit with very long erect spikes of flowers such as Campanile, Côte d'Azur.

Two new forms of the true *C. grata* have been introduced recently from China—namely, *C. grata lobulata* and *C. grata grandidentata*: but they are inferior to the older plant (*C. jouiniana*) both in foliage and flower, and their summer flowering habit makes them of less value in the garden.

For the rock garden there are several pretty annuals of dwarf habit, their chief value being that they may be had in flower in late summer and autumn, at a time when the true Alpine perennials are mostly over. Very often it is advisable to sow them where they are to flower though it is quite possible to raise the seedlings in pots or boxes, and plant out as desired. In the latter case the treatment should be perfectly cool from the first, as when coddled too much they fail to make satisfactory progress when transplanted.



CLEMATIS JOUINIANA.

The dwarfier kinds may be sown in nooks and crannies among the rocks and rocky steps or paths, first working in a few handfuls of sandy soil to give the young plants a fair start. Stronger sorts may be sown on flat pockets either alone or among dwarf perennial Alpines. They are also very useful for sowing over early

flowering bulbs like the many species of spring flowering Crocuses, *Narcissus minor* and *minimus*, *N. Bulbocodium*, *Tulipa dasystemon*, &c. In this way, the rock garden, which to some minds loses interest when not a mass of flower, may be kept gay into autumn.

Ethionema Buxbaumii is a pretty little annual with pale red or rose coloured flowers, and grows about six inches high.

A. saxatile is somewhat similar, but has spikes of pretty pink flowers.

Androsace lactiflora produces rosettes of leaves from which rise the flower stems, each surmounted by an umbel of pure white flowers.

Campanula attica is a delightful little species from Greece. It grows about six inches high and bears abundance of fine purple flowers. There is also a white variety of the same species.

Campanula Erinus is also suitable for the rockery, growing six to nine inches high, and bearing blue or white flowers, sometimes suffused pink.

Corydalis glauca is a graceful little fruitory with dainty glaucous leaves and racemes of pretty yellow flowers.

Corydalis rosea is similar with rosy flowers.

Grammanthes gentianoides is a showy little plant allied to the Sedums. It scarcely gets more than three inches high, and in a sunny position smothers itself in orange red flowers.

Sedum cœruleum is a dainty gem which appeals to everyone. Grown in an open sunny spot it attains six inches or less in height, and bears abundance of blue flowers, which are extremely effective.

Specularia perfoliata, commonly called Venus's Looking Glass, is an interesting Bellflower growing about nine inches high. The type has reddish-violet flowers, while a white variety is also lovely.

Ionopsidium acaule, the Violet Cress, is justly a favourite, sowing itself with charming freedom, successional colonies springing up and flowering from early spring till autumn. It grows only two or three inches high, and is very suitable for rocky walks and steps.

J. W. B.

Rose Pruning.

By DR. O'DONEL BROWNE.

PRUNING should commence early in March, as by this time most Roses are awakening. Commence with your wall varieties. In varieties such as Dorothy Perkins, Crimson Rambler and most of the Polyantha groups begin by removing all old worn out wood and all which have borne flowers. If possible take the wood completely away down to ground level. Now, carefully study the rods that remain. Do not be greedy and try to retain too many shoots. Go over the shoots and remove any that are unripe or those which when cut across show a brown pith. Remove the frosted tips and carefully lay those rods you wish to retain in against the wall or pillar on which you intend growing the tree. Weeping standards are treated just the same way, but in tying in try and so arrange that you have a well-balanced head.

When you have finished your wall roses you may get to work at your dwarf trees of H. P. and H. T. blood. Here, as I have explained above, you remove all old wood, also unripe and frosted growths. Look out also for suckers, which also must be taken out from their origin. Now, there are certain rules which you must prune by if you wish to have success:—

(1) No matter what variety of Rose you grow, if it has been planted lately in your garden, say last autumn or this spring, cut it very hard back. You can hardly be too severe. What you want to do is to promote growth, and the knife alone can do this for you.

(2) In treating the several kinds of growers you purpose pruning, you must remember that the poorer the grower the more you must cut! To treat such varieties as Mildred Grant and Hugh Dickson in the same way is to court failure.

(3) To try and keep a well-balanced head on your trees when they have made their spring growths and not to have your trees like a pig's cheek, "all on one side." This you must do by carefully seeing how the rods you propose to leave are arranged around the bole of the tree. Try and select, if possible, ripened shoots which are separated like the legs of an upside-down stool—rods diverging and leaving a hollow between them. This will admit light and air, and is a small means of preventing mildew. Sometimes a tree will not lend itself to allow you to do this at pruning time, but you get another chance at disbudding time—i.e., end of May.

(4) To remove all diseased and old and unripe wood at pruning time is another golden rule, and when you are pruning to put all the cut away

wood into a fire, whereby you burn germs of disease.

Now, let us see how we must prune.

First, the vexed question arrives with what shall we cut—shears, secateurs or a knife. Personally I always use a good pair of secateurs; they are clean cutting and quick. Try when pruning not to pull your tree about; you are apt to do so with a blunt knife and a hard shoot.

Choose a cold day, as if pruning is delayed and you prune on a warm day, some forward varieties may bleed—i.e., exude sap.

A good pair of strong gloves are a great help, and you may carry a small Grecian saw for old snags on your old trees. These old snags will ruin a good pair of secateurs in a short while.

Now to get to the vexed questions.

First of all you must remember the rules I have laid down.

Secondly, you must once and for all make up your mind as to whether you require quality or quantity.

Thirdly, you must use your eyes and brains and study each tree and the different varieties you have to prune.

Let me enlarge for one minute on this last remark.

I will take three varieties as my example—(1) Mildred Grant; (2) La France; (3) Hugh Dickson. Anyone can see that these varieties differ in habit, growth and flowering propensities. Mildred is a poor grower, therefore you must cut very hard to encourage her to grow. La France wants less pruning than Mildred, and Hugh Dickson wants less still. Note the great strong rods of Hugh as compared with the stunted, stubby growth of Mildred and you will see at once that if you cut Hugh as hard as Mildred that you will get growth—rampant.

Now bear these three varieties in your mind all through pruning time, and when you come to any tree try and think to which of these varieties that tree, by its growth, looks to belong.

Surely Horace Vernet, Gustave Piganeau, Sultan of Zanzibar, Lyon Rose, The Bride, Bridesmaid, Mrs. Edward Mawley, &c., &c., belong to class No. 1. You should not have many of these varieties in your garden unless you are an exhibitor.

Most of the Roses in your collection belong to classes 2 and 3. To give you a few examples I put Dean Hole, Mrs. David McKee, Killarney, George C. Waud, Betty in class 2, and Dr. O'Donel Browne, William E. Lippiatt, George Dickson, Ulrich Brummer, Laurent Carle, Duchess of Westminster in class 3.

Again bearing in mind what I have already said about old or young or diseased wood, let us get to work. Here you find a young tree with but a single rod. Cut this and all such hard back. A single rod is a bad foundation. Here again you have a young tree with two or three rods, mostly weakly, twiggy in character. Cut away the very weak ones and cut hard those that remain. Here again is a tree with several rods, some crossing each other. Never allow rods to cross, cut away the weaker and unripe ones. Bear in mind what I have said about a well-balanced head and divergent rods, and strive always to get this result.

Make another golden rule now for yourself. Whenever you cut back a shoot which you wish to flower, cut always just above an *out-looking*

eye. This will further help to keep the centre of the tree open. Do not leave snags of wood above the eyes, cut as close as you can. Cut straight across and avoid long slanting, sloping, skelping cuts, such as some old-fashioned gardeners love to make. They are only landmarks for weevils, &c., to light on to lay their eggs.

Of late years I have given up pruning some rampant growers, such as Hugh Dickson, and now I peg them down. Prune away all useless wood and clip the unripe tops off the remaining shoots. Have prepared by you pieces of strong wire about one foot long with a crook at the end. Bend your shoots down (do not leave too many) and peg them down with these wires. Try and arrange them so that you leave yourself room to hoe, and strive to furnish your bed all over.

Leave your Teas alone until April and prune them in just the same way. Here you will find that frost has done a good deal for you. Beware of leaving eyes that have pushed into growth. They are most probably frosted and blind. Get a good plump out-looking bud and cut to that. If you have Maman Cochet or the white variety, put your knife in your pocket and pass on—this Rose wants no pruning.

I am afraid these notes are a bit scattered, but I have tried to treat this most difficult subject in as brief a way as I can, and so, reader, I hope that you will forgive me if it is not *au fait*; but let me impress you to use your eyes when pruning, and if you require *quality* to use your knife more harshly than if you require *quantity*, but for goodness sake drop the "lady's plan," as I call it, of being too mean to cut hard enough.

How to Grow Herbaceous Phlox

By JAMES KEARNEY, Killiney, Co. Dublin

THE Herbaceous Phlox (*P. decussata*) is one of the most beautiful and hardy of garden flowers. With good culture and careful selection of varieties a glorious display of flowers may be had from July to October. Plant in groups of three or four plants dotted along the herbaceous border, or a much better effect may be had from massed planting in beds or borders solely devoted to them, but they lend themselves readily to either method.

Phloxes succeed in deeply dug and well manured ground, which must not lie sodden during the winter months, as they strongly resent such a position at that period of the year, and the site selected must have partial shade during the summer months to obtain the best results, for if exposed to full sunshine the sun's rays have a deadening effect on the flowers, especially the scarlet, purple and pink shades.

The ground should be trenched about 2 feet deep, mixing with the soil a good dressing of well decayed cow manure on light soils, and if inclined to be heavy use stable manure from an old hotbed, with leaf-soil and road scrapings added. Phloxes are very susceptible to attacks of eel-worm, and if they are present in the soil give a thorough dressing of Vaporite as trenching proceeds, and when the trenching is finished tread down the soil firmly and allow to settle for one week before planting.

The best time for planting in mild localities and on hot sandy soils is from the end of September to the end of November, but on cold

soils planting is better done early in September, when the soil is warm, or deferred until early in March. Plant out 2½ feet apart, and every fourth year lift the plants and divide, keeping the outside portions for your future stocks, and replant in newly prepared ground.

During the summer attend to staking in good time, and should the plants make too many shoots (after a couple of years' growth) thin them out a little, when they will give much finer trusses of flower. During dry weather they must be well watered, and a good mulch of short manure placed around their roots (to keep them cool and retain moisture) at the end of May. Give liquid manure and soot water once a week when the flower trusses are developing. During the flowering period remove all faded pips as they appear, as it makes way for fresh ones to develop and also prolongs the display. When finished flowering cut off old flower heads, and another display may be had quite late in the autumn, though not equal to the quality of the first.

They may be propagated from cuttings taken in spring or autumn, and rooted in a sandy compost in a cold frame, or by division of the plants, which I consider to be the most satisfactory method for immediate effect. The following are a selection of well tried varieties, which will grow well and give entire satisfaction:—

VARIETY	COLOUR
"Sheriff Ivory" . . .	salmon.
"Grace Darling" . . .	rose.
"Le Mahdi" . . .	reddish-violet.
"Pharaon" . . .	lilac-mauve.
"Widar" . . .	parma violet.
"Rijnstroom" . . .	salmon-red.
"Gruppen-konigin" . . .	satin rose.
"Frau. A. Buchner" . . .	pure white.
"Elizabeth Campbell" . . .	old rose.
"Josephine Gerbeaux" . . .	white and crimson.
"Iris" . . .	crimson purple.
"Clara Benzy" . . .	salmon pink.
"Queen Alexandra" . . .	pale blue and mauve (splendid).
"King Edward VII." . . .	crimson.
"Mrs. Oliver" . . .	salmon pink and white centre.
"George A. Strohlein" . . .	vermillion red.
"Etna" . . .	crimson.
"Mrs. Jenkins" . . .	white.
"Fairy" . . .	salmon pink.
"Dr. Charcot" . . .	parma violet.
"Baron von Dedem" . . .	crimson scarlet.
"Countess of Ilchester" . . .	salmon pink, suffused orange.
"Eclairer" . . .	crimson purple.
"Gen. Van Henty" . . .	scarlet and white centre.
"Henri Farman" . . .	mauve.
"Lady Mary Hope" . . .	coral pink.
"Lady Stewart" . . .	old rose pink.
"Tapis Blanc" . . .	pure white (dwarf growth).
"Selma" . . .	salmon pink.
"Louis Blanc" . . .	claret (distinct).
"Violetta" . . .	mauve and white centre.
"Gorgeous" . . .	salmon scarlet.
"Frau von Lessberg" . . .	pure white.
"Dr. Konigshofer" . . .	scarlet.
"Flambeau" . . .	brilliant red.
"Derviche" . . .	silvery grey.

Fota Island, Co. Cork.

By A. F. PEARSON.

FOTA Island, Co. Cork, the estate of the Right Hon. Lord Barrymore, is situated about eight miles from Cork, and can be reached by rail, a private station being on the island.

The island contains one thousand acres, and enjoys a beautifully sheltered position bounded on all sides by tidal waters. The choice collection of trees and shrubs is the work of many genera-

in circumference, 4 feet from the ground; advancing we meet with a very fine specimen of *Pinus insignis*, about 90 feet high, and covering a great area; *P. monticola*, about the same height, grows near by. *Abies smithiana*, a superb tree; *A. grandis*, 95 feet high; and *A. religiosa*, are all fine trees. *Fitzroya patagonica*, *Quercus Phellos*, *Liquidambar styraciflua* (a fine tree), *Parrotia persica*, and a grand piece of *Cedrus atlantica* are here mixing with such things as *Hakea pugniformis*, *Osmanthus ilicifolia*, *Plagianthus Lyalli*, *Pittosporum Mayii*: the latter has almost become a timber tree.



NEW ZEALAND FLAX AND GUNNERAS BY THE LAKE-SIDE AT FOTA.

tions. Lord Barrymore has inherited the love of his forefathers for all that is good in horticulture and arboriculture, and the result is seen in the high-class and well-ordered grounds. Without attempting the classification of the various groups met, I propose noting passing trees, &c., as the visitor meets them.

Mr. Beswick, at all times most courteous to visitors, takes us by devious paths to that portion of the grounds overlooking the flower garden, which at the time of my visit was rich and gay with thousands of *Verbenas*, *Heliotropes*, *Calceolarias*, *Begonias*, *Cannas*, *Zonal Pelargoniums*, &c. A great Roman Cypress, *Cupressus sempervirens*, towers above us: close by stands a giant Tulip tree, *Liriodendron tulipifera*, measuring 15 feet

Ilex cornuta is a nice plant, as also is *Ilex buxifolia*, which was in flower and berry.

Pinus patula has reached a great size, and but for having its top broken off by a gale some ten years ago, would present even a finer appearance than it does now. *Abies Nordmanniana* and *A. orientalis* are growing in friendly rivalry hereabouts. *Pinus excelsa*, further on, is particularly fine, as also is *Cryptomeria japonica*. *Davidia involucrata* is met about this point, and has flowered.

Desfontainea spinosa is rich in flower, and has become a plant of 10 feet high and as much across: it is particularly striking when seen so full of flower as this. The sweet-scented *Olearia ilicifolia* was also in full flower at the time of my visit.

Another sweet-scented shrub also in flower was *Chionanthus virginica*. *Philadelphus purpureus maculatus* is a really pretty foliaged shrub.

Cotoneaster Franchetii in flower and with its pretty arching grey-leaved stems is a distinct and pretty shrub. *Mitraria coccinea* nestles by the towering giants *Wellingtonia gigantea*, *Abies Menziesii*, and *Thuya gigantea*.

The outdoor fernery at Fota is more like a New Zealand forest scene than a bit of Irish gardening. A group of twenty tree ferns—*Dicksonia antarctica*—raise their fronds on stems quite ten feet high, and are, moreover, supremely happy, both summer and winter, with the natural protection of the forest trees which are

its giant leaves, while *Phormium tenax Veitchii*, *P. t. pendula* and the Powerscourt variety in big groups lend their help in making a pretty tropical effect.

Dacrydium Franklini, a rare shrub, is climbing up to tree form, while that beautiful evergreen beech, *Fagus Cunninghamii*, has reached a height of 45 feet, and retains a lovely symmetry. A few fine specimens of *Sequoia sempervirens*—the Californian Redwood—tower in stately splendour 90 feet in the air, and that rare shrub, *Circidiphyllum japonicum*, grows happily close by these giants; and beautifully set in another corner adjoining the water and the forest is a group of Dogwoods—*Cornus brachypoda variegata*, *C.*



THE FORMAL GARDEN AT FOTA, WITH CORDYLINES OVER 30 FEET HIGH.

judiciously planted in and around this picturesque group. Their smaller brethren are planted amongst rocks, and comprise such things as *Woodwardia radicans*, *Lomaria magellanica*, *Asplenium polyphyllum*, *Adiantum Capillus Veneris*, and many other varieties of both British and greenhouse ferns.

Passing from this delightful and cool retreat, in summer, a stretch of ornamental water is reached; on an island covered by a jungle of bamboos such varieties as *Arundinaria Falconeri*, *A. racemosa*, *A. nobilis*, *Phyllostachys Quiloi*, *P. fastuosa*, and *P. viridi-glaucescens* being noted all in luxuriant growth. The lake's surface is covered by numerous varieties of *Nymphaea*, many of *Marliac's* hybrids being quite at home. By the water's edge *Gunnera manicata* disports

Mas variegata, *C. Kousa*, *C. Spathii*, &c., being noted.

Leptospermum Chapmanii and *Grevillea rosmarinifolia* thrive admirably under the shadows of such Conifers as *Abies numidica*, *A. ajanensis*, *A. bracteata*, *A. firma*, *Thuyopsis dolabrata*, and last, that glorious *Pinus Montezumae*. This Pine has been my idol whenever Fota was visited: it is probably the finest specimen in the United Kingdom, roughly measuring 50 feet in height and covering a large area with its huge and well-furnished branches. Quite a different Pine is *P. parviflora*, which thrives well here. *Podocarpus chinensis* and *P. Totara* have positions near *Abies Pindrow*, while *Abies Albertiana* and *Abies Webbiana* join hands with *Cryptomeria araucarioides* and *C. spiralis*. *Liriodendron tulipifera*

fera variegata blends with such shrubs as *Escallonia philippeana*, *Drinys aromatica*, *Coton-easter rigosa* Henryi, *Colletia horrida*, *Hymen-anthera crassifolia*, &c.

Nandina domestica cannot be passed by: it is not often met with, but it is found thriving here along with *Acacia melanoxylon*, *Hakea salignia*, *Teucrium fruticans*, *Viburnum rhytidophyllum*, and *Ilex insignis*. The curious *Notospartium Carmichaeliæ*—the pink broom of New Zealand—is quite at home at Fota. And sheltered by less valuable shrubs is that handsome *Magnolia Campbellii*; in the springtime I had seen it with over one hundred flowers open. *Sophora tetraptera* and the Chinese rubber tree, *Eucommia ulmoides*, are also found at Fota growing in company with *Quercus macedonica*, *Cupressus MacNabiana*, and *C. Knightiana*. The golden chestnut, *Castanopsis chrysophylla*, is a pretty tree. *Osmanthus Delavayii* in pretty flower, *Ilex latifolia*, *Olearia macrodonta*, *Eugenia apiculata*, *Fagus obliqua*, *Fagus asplenifolia*, *Saxegothea conspicua* (Prince Albert's Yew), *Embothrium coccineum*, with many suckers, is a picture while in flower. *Viburnum Carlesii* is asserting itself. *Carpentaria californica* is a large plant. And now the walled garden is reached by an avenue of *Chamærops Fortunei* and *C. humilis*, with a few *Phoenix senegalensis* and *P. canariensis* quite at home, dotted here and there. The walled gardens extend to four acres, and are well furnished with wall fruits. Peaches, with a glass coping only, were a very heavy crop, while a long wall filled with plum trees carrying a large crop was noted. No empty spaces are found in this garden, as winter and summer crops follow each other in quick succession. Passing through finely made wrought iron gates, a pleasure garden, enclosed by well kept yew hedges, is entered. The mixed borders are well filled and gay with various flowers, while choice shrubs fill prominent places on an adjoining wall, conspicuous amongst them being *Rhynchospermum jasmminoides*, *Calceolaria violacea*, *Cassia corymbosa*, *Fremontia californica*, and *Indigofera Gerardiana*. A formal garden bedded with *Verbena venosa*, *V. Miss Willmott*, *Begonia Worthiana* and *Cannas* is very striking by reason of the stately *Cordylines*, *C. australis*, quite 30 feet in height, which have been established here for years in large groups.

The Rose garden is then traversed, from which we enter a sunken Italian garden with paved paths, having a fine old Italian marble well-head in the centre. The effect is pleasing and old-world like, and the beds have a quiet beauty all their own.

Such an establishment as Fota has the glass department in thorough maintenance. The Vineries were carrying enormous crops of grapes at which most growers would shudder; but "the proof of the pudding is the eating," and Mr. Beswick has turned out first class grapes for years from these vines, at the same rate, and they are even stronger looking now than they were ten years ago. The varieties Black Hamburg and Muscat of Alexandria are growing under the same conditions of temperature, &c. The fig house has a heavy crop, while the peach house had finished its crop. Melons were carrying a second crop of beautiful fruits, while the plant houses were full of good stuff. Crotons of high colour, Gardenias, *Tabernæmontanas*, *Alocasias*, *Caladiums*, &c., filled the stove. The greenhouse was gay with

Begonias, *Fuchsias*, *Celosias*, and Zonal *Pelargoniums*, while the pits contained hundreds of winter flowering *Begonias*, *Primulas*, *Cinerarias*, *Cyclamen*, &c., and large batches of winter-flowering *Carnations* were standing outdoors and growing sturdily. A large number of *Chrysanthemums* are also grown for winter decoration.

My sincere thanks are due to Mr. Beswick for enabling me to make these cursory notes. They are taken as we met the individual plants, and do not represent by any means half of the horticultural inhabitants of Fota. I mention this as an apology and in the hope that the reader who may not have been to Fota does not accept these imperfect notes as fully descriptive of that beautiful little island.

The bamboo garden, which flanks along a stretch of water at another part of the grounds, was not entered at all, but it is kept in the same state of perfection as Mr. Beswick does all the work under his control.

Uncommon Annuals.

By J. W. BESANT.

WITH the wealth of annuals now available it is perhaps little wonder if some are less common in gardens than others. For most gardens, such popular kinds as *Clarkias*, *Godetias*, *Larkspurs*, *Sunflowers* and many others provide all that is wanted for a display or for cutting.

There are, nevertheless, others of much beauty well deserving of inclusion, and as many owners of small gardens depend largely on annuals for a summer display, it may be useful to note a few of the less commonly grown kinds.

The *Argemones* are Poppyworts of rather handsome appearance producing quantities of flowers throughout the summer months. They prefer a hot, sunny position in deep sandy soil, and may be sown in April where they are to flower, though in many places it is advantageous to give them a start in a cold frame or greenhouse. Two or three seeds should be sown in a small pot, the resulting plants being turned out later on when strong enough.

A. grandiflora, which has large white flowers and glaucous prickly leaves, is one of the best, and usually grows over two feet in height.

A. mexicana and *A. ochroleuca* are two yellow flowered species, while *A. hybrida* provides yellow and white flowers. All are from Mexico.

Collinsia verna and *C. parviflora* are two pretty blue-flowered annuals which come into bloom in early summer. The former grows about nine inches or so high, and the latter is a low-trailing species. Both may be sown where they are to flower.

Crepis rubra is an attractive composite producing large quantities of pink flowers in late summer. It is quite a showy plant for the front of a border, but not suitable for cutting, as the flowers close up at night.

Eucharidium Breweri, with purple and white flowers, and *E. concinnum*, with deep pink flowers, are two desirable members of the Evening Primrose family. They are particularly good on light soils, and flower over a long period in autumn, growing from a foot to fifteen inches high.

Downingia pulchella is a pretty little annual of the Bellflower family. It grows about six inches high, bears pretty blue flowers with a yellow eye. May be sown in the open or in pots, and planted out.

Hibiscus Trionum is a handsome Mallow-wort with elegantly cut leaves and large yellow flowers with purple centres. It is a showy and uncommon plant, requiring a sunny position and rich soil.

Leptosyne maritima is a handsome annual not often seen. It likes an open sunny position in good soil where it will flower well into autumn. If thinned out so that the plants will be nine inches apart, fine specimens 18 inches to 2 feet high will result, each bearing numerous large yellow flower-heads.

Malcomia littorea grows about a foot high, and produces masses of rosy flowers all summer.

Omphalodes liliifolia is a pretty annual of the Borage family, and bears any amount of white flowers over glaucous grey leaves. It frequently sows itself and comes up year after year in the same place.

Papaver glaucum, the Tulip Poppy, is a bright showy annual growing eighteen inches high and bearing handsome scarlet flowers.

Phacelia campanularia, with large deep blue flowers, is a gem among annuals, and should be grown in quantity for the exquisite colour of the flowers.

Phacelia Whitlavia is also good, but rather taller, reaching twelve inches or so. The flowers are violet, somewhat bell-shaped, and very attractive also.

Polygonum capitatum is a pretty little trailing species bearing any number of small pink flower-heads in autumn. *P. orientale* is a very useful border plant, well worth planting in groups. It is best raised in a frame and planted out.

Sanvitalia procumbens is a bright, showy, dwarf annual, flowering for a long while through summer and autumn. It only grows about six inches high, and bears numerous yellow flower-heads with black centres.

Schizopetalon Walkeri is a remarkable annual with fringed white flowers which are fragrant at night. It grows about a foot high, and likes a warm sandy soil.

Sphenogyne speciosa, also known as *Ursinia pulchra*, is a showy South African annual in the way of the better known *Dimorphotheca*. The flower-heads are buff with black centres, and a warm light soil is essential. Seeds may be sown outside in April or in pots, and planted out when strong enough.

Zaluzianskya capensis, also known as *Nycteria* is an interesting night, flowering annual with scented white flowers. It grows about a foot high, and should be raised in pots and planted out in May.

Callirhoe involucrata and *Callirhoe lineariloba* are two North American plants which succeed best treated as annuals, though perhaps strictly perennials. They belong to the Mallow order, and do best in a sunny position. In habit they are somewhat loose and trailing, but bear abundance of flowers, the former crimson and the latter white and lilac.

Gilia dianthiflora, often called *Fenzlia*, is a pretty little annual about six inches high. It is delightful for sunny places, and produces any quantity of rosy-coloured flowers.

Hunnemannia fulmariaefolia is a most beautiful Poppywort with glaucous, finely cut, fumitory-like foliage. The large golden yellow flowers are very handsome surmounting the glaucous leaves. Seeds should be sown early in a frame or greenhouse, planting out in June.

Solanum capsicastrum.

MOST gardeners are rather short of decorative plants in late autumn and up to Christmas, and to those may be recommended the adoption of the trade method of growing bushy, well-berried plants of this useful subject. Though seeds produce fair plants, propagation by cuttings is the preferable method, as by this means good forms may be kept true. The best habited plants should be selected, and placed

in a warm house, and when procurable short cuttings should be taken of the young growths: these if inserted in 3-inch pots and placed in a propagating frame with a heat of 65° will soon form roots. When sufficiently rooted they should be transferred to 3-inch pots, being stopped continually to ensure dwarf plants, and if kept growing on in this temperature will require moving into 18 inch pots by March. In order to keep down red spider, which soon spoils the foliage, the syringe should be freely used.

Early in July good plants should be formed, and then syringing should be discontinued, and abundance of air given to ensure a good even set. When the berries are formed weak liquid manure is necessary to help them to swell, its use being discontinued when the berries begin to turn red. If large specimens are required they can be planted out in May in a good loamy soil after being gradually hardened so as to bear exposure to the sun, and in September they can be potted and brought inside to ripen.



Photo by]

[Mackey, Ltd.

LEPTOSYNE MARITIMA.

Hints to Novices

By MAY CROSBIE.

DRY days in March are always valuable. It is the month when most of the outdoor seed sowing is done. We often get a good deal of rain in March, and it is best to get on with this work whenever weather and soil permit. But if the ground is too wet—that is, when the earth sticks to the spade and seems cloggy and when the lumps cannot readily be broken up by a rake—it is better to postpone the sowing till it dries. For all kinds of seed see that the soil is made as fine as possible.

Of the flower seeds, if Sweet Pea has not already been sown get it in first. In February IRISH GARDENING directions for its treatment will be found. Seeds of it sown under glass ought to be a few inches high now and by the middle of the month, if in a frame, the lights ought to be off altogether and if in a greenhouse the pots or boxes of seedlings should be stood outside in a sheltered corner, so that they may be properly hardened off before planting out.

All flower borders and flowering shrubs will want to get a dressing of manure. Old short manure is much better and easier to dig into the borders than fresh stuff. By now all bulbs, &c., will be well above the ground, and with care the manure can readily be dug in between the plants without injuring their roots. If the only manure available is fresh stuff, it is a good plan to spread it over the surface of the border and leave it so for a few weeks, when it will be found much easier to work in. Clumps of herbaceous plants that want moving or dividing ought to be lifted before manure is dug in. When replanting, use the outside pieces of the clumps and throw away the old worn out centres. Such plants as Michaelmas Daisies, that spread quickly and are surface rooters, require this done every second year to get the best results.

Now is the time for increasing the stock of hardy Chrysanthemums. This can be done in

two ways, either by dividing the clumps, which will have young growths an inch or so long, leaving a few nice, strong shoots to each division; or by breaking off such a shoot and putting it in as a cutting. Choose nice sturdy shoots, dibble them firmly into a shady border about three inches apart; stop them when about four inches long, and they will be nice little plants ready to move to their flowering quarters in June.

Any vacant spaces in borders can be filled with annuals. Make the soil fine, scatter seed thinly, cover with a little fine soil. A few good tall annuals for back of border are, branching Larkspurs in all colours (rosy scarlet and light blue being perhaps the most popular shades), Mallows (*Lavatera rosea splendens* is the best), Malopes, Shirley Poppies, Cornflowers, *Clarkia*

elegans. A few of the best about one foot high are *Nigella*, *Miss Jekyll*, *Swan River Daisy*, *Sweet Sultans*, *Chrysanthemums Morning and Evening Star*, *Venidium calendulaeum*. Slugs are enemies to be feared, and they are particularly fond of Larkspur and Sweet Sultans. Heaps of bran or the peel of half an orange put like an inverted cup on the ground make excellent traps. When the seedlings are making their second leaves thin to about an inch apart.



Photo by]

[H. C. Elsdon

PENTSTEMON SCOULERI IN THE ROCK GARDEN.

They will require a second thinning later, leaving the dwarf ones about six inches and the tall ones about a foot apart. Well grown annuals are a tremendous help in making the border gay during the summer and autumn.

Before the end of the month all roses may be pruned. When rose bushes for garden decoration are wanted, pruning is a much less drastic proceeding than that for exhibition blooms. For general garden work a well-shaped bush that will give a good quantity of bloom is the object of the pruning. Take out all dead wood and all old branches that are making poor growth. When shortening the good growths remember weak shoots can be cut much harder back than strong ones, and that the top bud left on the shoot will grow first and in the direction in which it points. When pruning is finished fork over all the ground and give the beds a good mulch of manure.

Pentstemon Scouleri

THE handsome and attractive *Pentstemon* illustrated is one of the most beautiful of all this genus. The pale blue violet flowers are produced in April in great profusion, almost completely hiding the foliage of the plant: its great floriferousness and its adaptability to exposure makes it valuable as a subject either for the rock garden or the herbaceous border, and when established it soon forms large plants, the flowering season lasting for several weeks. Its native home is North

America, and is considered by some as a variety of *P. Menziesii*. The flowers resemble the last named, but the plant differs in that the leaves are smaller and somewhat narrower; the flowers are also produced in greater profusion, although there are several intermediate forms. The propagation is easily effected by cuttings taken from the young shoots produced after flowering, and rooted in sandy soil, placed under a bell glass: seedlings are also easily raised—H. C. ELSDON.



Photo by]

[R. A. M.

THLASPI ROTUNDIFOLIUM IN A NATURAL MORaine.

Thlaspi rotundifolium.

THE round-leaved Penny Cress is a pretty little Alpine, only a few inches high, suitable for the moraine or for very gritty soil. Our illustration shows a plant growing in a shingly moraine deposited by a river, but it is more often found in rocky debris at an altitude of 6,000 to 8,000 feet, and is fairly well distributed over the Alps, being found on both granite and limestone.

The leaves are small, deep-green and fleshy, closely pressed to the stone, and in early spring flattened racemes of four-petaled flowers appear of a pleasing rich lavender colour and sweetly scented.

Thlaspi rotundifolium and the newer and scarce *T. limosellæfolium* make long taproots in nature, but are both adaptable to cultivation in the moraine.

T. limosellæfolium is a finer and larger plant than the older cultivated form, with lighter green leaves, long and spoon-shaped, and longer racemes of bright lilac pink flowers, altogether a desirable and beautiful little plant.

A Search for Alpines in the Granite Region of the Maritime Alps.

STILL persevering along the snow-covered path in the Ciriegia Gorge we eventually reach the top of the pass and feel the warmth of the sun with pleasure and enjoy a well earned breakfast, while behind and around us were the lofty peaks of the Mercantour, Mount Matteo, and the Argentera. The snow has left the summit, and looking about

we came across *Gentiana brachyphylla* and a dwarf *Phyteuma* in flower. Our steps were directed to a steep mountain slope, and here we came across *Viola nummulariaefolia*, not only in hundreds, sometimes peeping out from under huge blocks of stone or in loose tumbled granite, and some plants, even in gritty turf, where one could lift a clump a foot across. But few of the individuals are so accommodating, the wandering shoots are usually among the stones,

and then below these are some good roots. This *Viola* has thread-like stems, round leaves only half an inch across with petioles nearly an inch long. The flower stems carry the flowers well above the foliage. The flowers are true violet shape of a pale violet. Some plants were only just opening their blossoms even in August, others in the full sun were flowering more freely than any other *Viola* I have ever seen, but unfortunately no seed was ripe. The *Viola* was often growing through tufts of *Saxifraga retusa*, which delights in the granite moraine. Its pink flowers were past and seed pods here already forming. Leaving this moraine and going up the rocks, *Thlaspi limosellæfolium* gives a touch of colour to the dull grey rocks, its leaves are green and spoon-shaped, and the flowers are borne on stems 3 to 5 inches high, of the most beautiful lilac pink. The most luxuriant plants were found in the crevices of the solid rock. One of the prettiest of natural combinations was to be found where the pink *Thlaspi* came down to the screes and appeared among the white daisy flowers, flushed with purple-rose towards the centre, of *Chrysanthemum tomentosum*.

I believe some writers state this plant to be endemic to Corsica, but here it was fairly abundant. It appears to be a little known Alpine of great beauty, and may be said to be a companion of *C. alpinum* with the added charm of silvery leaves. The silvery *Senecio incanus* and the long-spurred Violet (*V. calcarata*) were also plentiful.

The Col de la Ciriegia is 8,370 feet high; its southern side drops away steeply, and then a long walk brings us to the Boreon Hotel (4,823 feet alt.). This hotel by the waterfall is a comfortable and enjoyable resting place and a favourite excursion for residents of St. Martin Vesubie. While staying at Boreon we intended to visit the home of *Saxifraga florulenta*. Starting too leisurely and late one day we found it was time to return when we arrived and collected a few rosettes. Not satisfied we returned the following day, hoping to collect seed. The path leads gently upwards through a forest of Spruce with a few open places intervening: here we see *Saxifraga cuneifolia* on the rocks, and the ubiquitous *S. aizoon*. On the banks of the Boreon river the tall blue Monks-hoods and Delphiniums gave a splash of colour. *Polygonum alpinum* waved plumes of white flowers as graceful as any *Spiræa*, and the fairy white flowers of *Astrantia minor* are ever pleasing, while *Primula marginata* and *viscosa* had passed out of flower. *Primula hirsuta* is usually the plant sent out as *V. viscosa*, but the true *viscosa* has long oval leaves, 3 to 4 inches long, which are covered by sticky glands, sticky flower stems bear clusters of purplish flowers of rather small size. The plant has a vile smell, and usually grows in chinks of the granite rocks. Following the stream along the Rovinette Valley, passing Geums, Gentians and the Alpine Rhododendron, we eventually came to the end of the Valley, where the river has its source in a small lake fed by mountain streams. Except the way we came the valley is shut in on all sides by bare mountain ridges, destitute of trees. We climbed over huge tumbled masses of rocks many tons in weight, then on smaller shingle, passing again the beautiful pink *Thlaspi* and the Alpine Forget-me-Not, until we came under the shady side of a cliff where the *Saxifraga florulenta* thrives. Here it forms beautifully regular rosettes of incurving shining green leaves without a trace of silver. Throughout the day we found it in varying stages, from tiny seedlings germinating on moss, turf or débris, to old starved plants with long stems bearing old dead leaves topped by green leaves when growing in shallow crannies where the roots could not descend deeply. In the open, getting the full force of the sun and growing with rosettes erect, we found it: but the most favoured site is the shady side of a cliff, growing horizontally from the rock. Some of the finer rosettes were from 6 to 8 inches in diameter. Old seed pods were there, but the seed was gone, for, like *S. longifolia*, it dies after seeding. It appears to like the deepest and tightest crannies in the granite, for even when growing on sloping shelf-like places with plenty of soil it is not altogether happy, but when pressed tightly by the rock, even though the rosette is squeezed into a long oval shape, it seems quite happy, and the leaves have the hard firm feel, with sharp spiny points, which indicates good health. Three parts of the way up the mountain ridge this plant grew, then we left it behind. The mountain side gets steeper, but as reward near the top we find on the most precipitous places *Androsace inbricata* growing in chinks in the solid rock almost without any soil

at all, forming silvery cushions studded with tiny white flowers with pinkish centres. On other steep ledges in turfy soil and granite débris we came across the *Reine des Alpes* (*Eritrichium nanum*) by the hundred in all stages—tiny seedlings and nice compact tufts, some still bearing lovely blue flowers, and others just ripening their seed. *Saxifraga retusa* and dwarf *Phyteumas* also grow as companions to the *Eritrichium*. A steep gully brings us up to the top of the ridge, and we look down upon a sudden drop of some thousands of feet. Nothing for it but to retrace our steps, and already we have stayed too late, for it is nearly 5 o'clock, and mists swirl around us, but luckily are not constant, and we find the river, which is a guide to us on our homeward journey.

C. F. BALL.

The Sweet Pea Annual, 1914.

THE tenth issue of the Annual published by the National Sweet Pea Society is now ready, and well maintains its reputation for interest and usefulness to all Sweet Pea growers: a greater number of illustrations than usual makes it much more attractive, those depicting the different methods of growing and staking the plants should prove most interesting to all who grow for exhibition, and who aim at having large and perfect blooms well set up on long and sturdy stems. The Annual contains a full report of the Sweet Pea Conference, held at the Hotel Windsor, London, on 20th October last, at which Mr. J. S. Brunton read a valuable paper on "The Sweet Pea Industry," showing the enormous increase in the acreage under Sweet Peas for seed during the last decade in Great Britain and in California, and the great strides that have been made in growing blooms under glass for market, these are now largely grown on the disbudded system, fetching 4s. per dozen bunches as against 1s. per dozen for ordinary blooms. Mr. A. Malcolm, of Duns, the introducer of that charming variety "Edrom Beauty," gives a most interesting account of his own personal experiences in the "Cross-Fertilization of Sweet Peas," and sums up by saying that the chief requirements for a hybridist are "vigilance in a superlative degree, love for the flower and the work, an eye for colour and form, the patience of Job, and last, but not least, the hide of a rhinoceros to receive the kicks from critics with impunity." Mr. Arthur Yates, of Sydney, describes a new "Early Spencer," of very vigorous growth, which originated in a garden five years ago; the seeds of which all came true to the parent, and they have now a strong growing race of winter-flowering Sweet Peas superior in every way to the Telemly variety, which, when sown in succession, give blooms all the year round. There are also interesting communications from New Zealand, Japan and British Columbia, and replies from fifty-four prominent growers as to the twelve best Sweet Peas in commerce, the best novelties of 1912-13, the best varieties for growing under glass, the best manure, giving the nature of the soil. The Provincial Show of the Society is to be held this year at Belfast on July 24th, and as Mr. Hugh Dickson, of the firm of Alex. Dickson & Sons, is the President of the Society this year the Belfast Show is sure to be an immense success. The Annual is sent free to all subscribers from 5s. upwards, non-subscribers can obtain copies at 2s. each from the Secretary, Mr. H. D. Tigwell, Greenford, Middlesex.

A Pilgrimage of British Farming.*

THIS book gives a general account of the farming of the British Isles as it is practised to-day. Such an account might be put side by side with Arthur Young's description of the farming of his day. It is published at an opportune time, when economists and leaders of agricultural opinion are making a keen study of the problem of getting most out of the land, so that our own country may yield more of the food consumed by the people.

The author, with Professor T. B. Woodhead, of the Agricultural School at Cambridge, and Mr. E. S. Beaven, as colleagues, started their tour in the summer of 1910 and continued it during the summers of 1911 and 1912. At the time articles descriptive of each phase of their wanderings appeared periodically in the *Times*, and the book under review is a reprint of these articles with but slight revision.

The tour starts in Wiltshire, and the first farming described is that practised on the western edge of Salisbury Plain, where the soil is derived from the chalk—a geological formation which in many ways gives a distinctive feature to much of the farming of England. A brief account is here given of Mr. E. S. Beaven's work at Warmminster on the improvement of cereals. The tour is then extended to Blackmoor Vale—an area largely devoted to mixed farming. Somerset next occupies attention, the principal agricultural features being barley-growing and dairying; an account is also given of some newly formed small holdings. The next step is towards the Dorset Downs, the home of a handsome breed of sheep. The farming of Sussex, a county devoted largely to corn growing, is then described, after which the South Downs, also so well known for their breed of sheep, are visited. The following chapter deals with "specialist" farming, and in this connection the poultry fattening in the neighbourhood of Heathfield is described. Hop growing in Kent is next dealt with. This is one of our most expensive crops to grow, an average annual expenditure of £50 per acre being required for its proper handling. That it is also a speculative industry may be seen from the fact that the price of hops may one year be £2 per cwt. and may rise to £7 the following year. Needless to say hop-growing is a highly specialised industry, and one requiring great skill. The hop-grower in Kent invariably grows fruit also, and the author gives an account of the system adopted. Essex next comes in for description, and we find it a county largely devoted to seed corn production and dairying. In this county, too, some small holdings have been established, but the account of them is not very favourable, their failure being attributed to the heavy nature of the soil. The Fenland district is then described. This is an area reclaimed in comparatively recent times, and is composed of a soil naturally very rich in organic matter, so rich that in many instances cereals cannot be grown, while the heavy crops of roots are of very poor quality. An account of the arable farming and bullock fattening so characteristic of Norfolk then follows: after which the fruit and flower-growing districts in Cambridge-

shire occupy attention. In the Spalding district bulb growing for the wholesale market is extensively practised. "Lincoln Heath and Wold" heads the next chapter, and we find barley-growing and the Lincoln sheep the chief features.

The summer of 1911, which saw the pilgrims again astir, was exceptionally dry, while that of 1910 was dull and wet. A start is again made in Wiltshire, but this time in the Vale of Pewsey—a district of large farms, mostly devoted to milk production for the London market. The farming of the Upper Thames Valley is then described, after which the Vale of Evesham is visited. This is a district of special interest to horticulturists, it being one of the most successful fruit-growing districts in the kingdom. The Pershore plum is a great speciality, and a good deal of attention is also given to vegetable growing, asparagus being very largely grown. The area of the holdings is for the most part small, which goes to show that when specialist farming is adopted small holdings may meet with some measure of success. An account of the farming of the West Midlands follows, after which the farming in the Valley of the Teme is discussed. This is another district of horticultural interest, as hops and fruit are extensively grown and a large quantity of cider is manufactured. A description of the farming in Shropshire, Cheshire, and Lancashire then follows.

The pilgrims visit Ireland, and their second tour is completed there. The author first describes the farming around Belfast Lough, where flax-growing is the chief feature. Here is met, for the first time, the tenant-right system of land tenure peculiar to Ireland. Referring to the fixing of fair rents, the author gives the period that elapses between each revision as five years, whereas it is really fifteen years. An account of the farming around Lough Neagh is then given, after which the route taken is by the east coast and on to Navan, where tobacco growing and grazing are the chief interests. The farming of central Ireland is then described, after which the tour is extended along the Western seaboard, where the author gives an account of the prevailing economic conditions, and he lays stress on the benefits of co-operation to the small holders.

During the journeys of 1910-11 a straight line of country was taken with a more or less geographical sequence, with the result that certain parts of the country were untouched, so during this the last tour attempts were made to touch on these.

Those who have enjoyed Mr. Hall's other writings will not be surprised that this work is marked by freshness of treatment and lucidity of expression. It is, however, a pity that neither he nor his publisher saw fit to provide sketch maps of the various localities visited. A few well chosen pictures, too, would have added much to the value of the work. The most disappointing part of the book is that devoted to Ireland. The space which could be allowed to our island is altogether inadequate to a worthy treatment of the present position and progress of Irish farming. Still the author, who is a trained observer, manages to seize upon many of the salient features of agricultural development in Ireland. Altogether the work will prove of great value to all who have the interests of agriculture at heart, and will take its place as an authoritative picture of the condition of farming in the United Kingdom in the early part of the twentieth century.

J. D.

* "A Pilgrimage of British Farming." By A. D. Hall, M.A., F.R.S. Publishers: J. Murray & Co., London. Price, 5s. net.

The Month's Work.

The Flower Garden.

By WM. G. WADGE, Gardener to Lady O'Neill,
Shane's Castle, Antrim.

THE Winter Aconites, Snowdrops and Crocuses have already renewed the promise of spring, and soon the Wallflowers, Polyanthus, Myosotis and other plants used in the spring bedding scheme, besides bulbs and early flowering shrubs, will be in flower. Make the beds or borders and the surroundings as smart as possible. Trim the verges, make up any blanks from the reserve bed, and, when a drying day occurs, loosen the surface soil with a hand-fork or hoe. The bloom spikes of Hyacinths must be supported in good time: let the tie be loose or the flower stem may be held down and broken. Attend to sweeping, rolling and everything that promotes neatness. Gravel paths that are worn should have the surface loosened and raked over, leaving it higher in the centre than the sides, then a covering of fresh gravel should follow. The mild winter has encouraged the growth of weeds. Weed-killer, used according to the maker's instructions, is undoubtedly the best means of eradicating these from walks, but for various reasons this cannot be used on some estates; then hand weeding or the hoe must be resorted to. A word of warning regarding the weed-killer: Store it where there is no possibility of its being used in mistake for an insecticide. Lawns may require mowing before March is out: much depends on the weather. Before using the lawn mower gather all rubbish strewn on the grass by storms, and brush the parts near to gravel walks or drives. If the whole can be rolled previous to mowing so much the better.

CLIMBING PLANTS AND SHRUBS.—Complete any planting in this department, see that all recently planted trees are secure against strong winds, and a mulching of manure should be given. Get any re-labelling necessary done now. Climbers must be pruned and secured to the supports before active growth commences. How to prune must be decided by the habit of the individual plant. Cut away all foreright shoots, dead wood and weakly useless growths. With young plants or those that have not covered the space it is intended they should, tie in the leading shoots and as much other young wood as there is room for, remembering to build up a well-balanced specimen. Clematis Jackmanni and other subjects that flower late in the season from the young wood should be cut hard back, excepting a few main shoots to reach the top of the wall. Other plants that flower on wood made the previous season should have some young wood laid in each year, and the cutting back should not be done till immediately after flowering. Most climbing plants are benefited by having a large branch cut down to the ground level occasionally: this makes space for younger wood and keeps the bottom of the wall furnished.

SWEET PEAS.—Remove the lights from autumn sown plants, and only replace them during severe weather; stand the pots outside about the 20th of the month in a sheltered corner. At the same time give the ground where it is intended to grow them a dusting of superphosphate and

soot, and fork it in to the top three inches of soil. A sowing may also be made out of doors.

VIOLAS have begun to grow, and the cuttings inserted in autumn must have more space. If they can be planted now in their flowering quarters, they will give the best returns, but when they are used as edgings or ground work for beds containing more tender subjects, the Violas must wait, but they may be planted in lines on a border, and this will free the frame to be used for other things.

GLADIOLI.—These make an imposing display in late summer, whether planted in beds or in clumps in the mixed borders. Plant the corms early this month, placing a handful of sand under and around each.

LOBELIA CARDINALIS.—Divide the clump, shaking off the old soil, and place the pieces in pots or boxes, and grow on in gentle heat for a few weeks, then remove to a cold frame.

ROCK GARDEN.—Reduce in size or number any free growing varieties that are likely to crowd out smaller and perhaps choicer kinds. Loosen the surface soil carefully with a hand fork, and topdress any plants requiring it. Slugs will be troublesome and must be checked. They seem very fond of the young green shoots. The only sure way is to search for them at night with a lamp. Little heaps of bran placed amongst the plants will attract them. Zinc collars, three inches high, can be placed around the rarest plants.

SEEDLINGS sown last month should be picked off before they get crowded. The remainder of the half-hardy annuals—Asters, Stocks, Marigolds, Phlox Drummondii and other things—may be sown now.

If the ground is fairly dry and the weather favourable, sow seeds of hardy annuals late this month: better wait till April than sow on pasty ground.

PROPAGATING.—Continue to insert cuttings of Lobelia, Koniga, Iresine, Alternanthera, Heliotrope, &c., till the stock is large enough. There will be cuttings from the Dahlia roots placed in heat last month ready for insertion. All cuttings, when rooted, should be hardened off gradually. Grow no plants intended for planting out later in a strong heat.

The Fruit Garden.

By PETER BROCK, Horticultural Instructor
for Co. Fermanagh.

FOLLOWING the month traditionally reputed for filling dykes, the first half of which was for the most part wet and stormy, and retarded spraying and other work in fruit plantations, March, with its lengthening days and drying winds, is likely to be an extra busy time in the fruit garden, and no opportunity should be missed to have work well forward, so that there may be no arrears at the end of the month. Those whose ambition it is to be in the front rank in the production of first-class fruit must be prepared from now onwards to meet the requirements of their trees and bushes as they require attention. Fruit growers who have had fungoid and insect pests to contend with in the past should anticipate their coming again and be prepared to subdue them in the early stages of attack, and any deficiency in the store of spraying material to meet the require-

ments of the coming season should be at once made good. If not already procured, this is a favourable time to lay in a supply of chip baskets and punnets for small fruits, as manufacturers will in many cases be pinched for storage, and better terms can be obtained now than later on.

MULCHING LATELY-PLANTED TREES AND BUSHES.—Having regard to the unavoidable depletion of the root system incurred in moving trees long journeys from one place to another, the largest roots suffering from curtailment and mutilation—sometimes through careless lifting to an unpardonable extent—and the small or fibrous roots suffer to a corresponding extent from exposure. It is therefore essential that such trees should be assisted in forming a new root system, by protecting them at the roots from the action of drying winds in spring and subsequent drought in summer, with a mulching of about two inches of well-rotted farmyard manure, keeping it about two inches back from the stem and letting it extend about a foot beyond the spread of the roots. This manure should be such as can afterwards be hoed on the surface; it should be neatly levelled and afterwards covered with fully one inch of fine soil to lessen loss from evaporation. New plantations of raspberries and gooseberries derive great benefit from liberal mulching with good short farmyard manure, or, if procurable, sea-weed makes a suitable mulching for all kinds of newly planted trees.

PRUNING YOUNG TREES.—Trees planted during the present dormant season should—subject to certain conditions—be pruned about the end of this month. The best time for this operation is when the sap has begun to move and the buds are swelling. Select the best and rightly placed bud, and with a sharp knife cut the shoot off just above that bud, entering the knife behind and about the sixteenth of an inch above the level of the bud, drawing it through and making an oblique cut coming out fully an eighth of an inch above the level of the bud. If good trees have been properly planted on well prepared land, and the pruning done now, the growths produced during the ensuing summer may be relied on to form part of the foundation of the tree; whereas if left unpruned for a season, this growth (although somewhat stronger) would be produced a year later after cutting off and behind fruit buds and into two and three year old wood. Correct pruning lies in assisting nature in the development of the highest ideal to which any particular species or variety can attain, and the careful pruner will from the first keep in view the different conditions under which the trees are grown, also the habits of different species and varieties, and the development of well balanced specimens, with their branches disposed to the best advantage for the production of high-class fruit. Two year old trees should be cut back to from four to six inches from the base of last year's growth. Maidens should be cut to a uniform height. Trees planted on ill-prepared land, or poorly grown trees, should not be pruned the season they are planted, as better results will be obtained by deferring the first pruning till they have had a year's growth to establish, then they may be cut hard back. New plantations of raspberries should have the canes cut back about the end of this month to within about nine inches of the ground. To beginners this may appear a sacrifice of fruit the first year, but the ultimate gain the second year will many times more than

compensate for the first year's loss, both in increased quantity of fruit and vigour of canes.

GRAFTING.—Re-grafting is a simple and expeditious way of converting undesirable sorts of apples and pears into a source of profit. Pears are first to become ready, plums next, but as a rule the latter are better budded. April is generally the best time for apples according as the starting into growth may be controlled by the particular locality or mildness of the weather. Make sure, however, not to begin till the sap begins to rise, which is easily ascertained by the swelling of the buds and the bark being easily raised from the wood. If the scions be dormant, but fresh and plump, and properly put on when



the sap begins to rise there should be very few failures. The trees having been some time previously cut down to within a few inches of the point intended to graft at, should now be cut at the desired point, and the end of the stock made smooth with a sharp knife. For large stocks or arms that require several grafts, two or three inches apart, crown or rind grafting is the most suitable, simple and sure. The scions—preferably of last year's growth, although two year old wood may be used—having been for some time heeled in damp material and in a cool, shady place, should have two or three eyes; the lower half is cut with a flat sloping slice, which should begin opposite to an eye and end in a thin point. It should be cut so as to contain as little pith as possible. A notch or shoulder cut in the upper part will serve to rest the scion on the end of the stock, and when the union takes place the scion will expand over and cover the end of the stock. In using slender scions in strong bark, slit the bark through with a clean, sharp knife, making a perpendicular cut to fully the depth of the scion to be inserted, then, with a neatly trimmed wedge of tough hard wood, open the

bark nearly to the depth the scion will reach, and push it gently down till the shoulder rests on the end of the stock. With strong scions and pliable bark on the stock, make a chisel edge on the back of the scion, ease the upper edge of the bark with the knife, and push the scion gently down to the shoulder, which should be about two inches from the point of a strong scion. If grafting wax is available, with it close the opening in the bark and round the scion on the end of the stock. The scions should then be held in position by winding some soft material round the stock, not too tight, but just tight enough to ensure that the scions are resting against the stock. For large stocks or arms the brown fibre coir cord, used for tying down thatch, is the most suitable. This cord does not contract or expand with changes of the weather, yields to the swelling of the scions, and may be left on till August. Small stocks with two or three grafts may be tied with raffia or bass matting. Success in grafting depends largely on completely excluding the air and preventing evaporation from the parts where cohesion takes place. For this purpose grafting wax is best, although good results may be obtained with stiff waxy clay and cow or horse droppings in about equal parts, well worked together to the consistency of stiff putty, and prepared a few days before it is wanted. It should be firmly pressed round and over the end of the stock, letting it extend well below the tying, then made smooth by dipping the hand in water and rubbing it evenly, leaving it in the shape of a cocoa-nut. After the grafts start into growth they should be secured against breaking by wind with stout stakes tied to the stock. Strong growing sorts like Bramley should be supported with stakes over the second growing season. Most of the spray growth which pushes from the stock may be allowed to grow the first summer for the purpose of maintaining a good root action in the stock till autumn, when it may be all cleared off, and the grafts being well established will utilise all the sap the following season. Other methods of grafting, such as whip or whip-and-tongue, are more suitable for small or nursery stocks.

The Vegetable Garden.

By ARTHUR HORTON, Gardener to Colonel Claude Cane, St. Wolstan's, Celbridge.

POTATOES.—Any time during the early part of this month a few potatoes may be planted outside. A sheltered part of the garden should be selected if possible. If the ground has already been manured and dug a large piece can be planted in a very short time. For early planting I prefer planting on the flat to the usual method of drilling and moulding up as the work proceeds, as the earthing up can be done gradually, therefore the young growths will be protected from cutting winds or late frosts. The distance to plant must be determined by the variety grown; from 15 inches to 18 inches between the sets and 2 feet to 2 feet 6 inches between the rows will suit most varieties. Medium sized sets are the best; leave only two or three of the strongest sprouts. When large tubers are used they should be cut, and dip the cut portion in fresh lime some time previous to planting. On very heavy or clay soils it is almost impossible to produce potatoes of good quality unless special measures are taken, and where only a few for early supplies are required

a good plan is to take out a trench or opening and place about 3 inches of well decayed leaf-mould in the bottom, then plant the sets on top and cover with about the same thickness of leaf-mould, and finish off with the ordinary soil well broken up. Of course this entails extra work, but it is well worth it, as tubers of the finest quality can be produced either for table or exhibition. For this planting it is advisable to have some protecting material at hand in case of frost after the young growths are through the ground; branches of spruce, yew or laurel will be found suitable, and can be placed in position very quickly. The main crop should not be put in until after the middle of March, especially if the sprouts are in a forward condition.

SEED SOWING.—Many kinds of seeds should be sown during this month, but owing to the uncertainty of the weather it is not advisable to depend too much on one sowing, rather sow little and often. If an early border is available a small sowing may be made of early Horn carrots, turnips, lettuce, spinach and parsley.

PEAS sown in boxes last month should be placed in a light and airy position. No opportunity should be lost in making successional sowings outside. If the weather is unfavourable a few more may be sown in boxes. This vegetable being first favourite with the majority of people, no pains should be spared to keep up a continuous supply. A common mistake made is in the growing of far too many varieties. Most gardeners know that a certain kind may do exceptionally well in one garden, yet in another, even quite near at hand, it is quite the reverse. Therefore it is best to find out by experience three or four which can be relied on and grow more of the one variety successional.

BROAD BEANS.—The ground for this crop should be deeply trenched and well manured. Sow in double lines 3 feet apart and about 9 inches between the plants. The long pod varieties are the best for early use, while the Windsor are preferable for later supplies.

CELERY.—The sowing for the main crop of this should be made about the first or second week in March in pans or boxes and placed in a gentle bottom heat. When the seedlings are large enough to handle, prick off into boxes or frames three or four inches apart in a light compost; syringe daily and shade from bright sunshine until the plants are well established. At no period from the time of sowing to earthing-up should the plants be allowed to suffer for the want of water, or a large percentage will run to seed.

ONIONS.—If not already done no time should be lost in planting out autumn sown onions from the seed bed. Lift the strongest plants carefully and plant with a trowel in lines 1 foot apart and 6 inches between the plants, give a good dusting of soot, and hoe between the lines on all favourable occasions. It is not advisable to make too large a planting, as they are not such good keepers as onions sown in the spring. Onions sown in boxes in January must be kept in a light position and gradually hardened off, ready for planting out next month.

Lights should be taken off cauliflowers wintered in cold frames on every favourable occasion to ensure sturdy plants at the time of transplanting, which can be safely done by the end of March or beginning of April, according to weather conditions.

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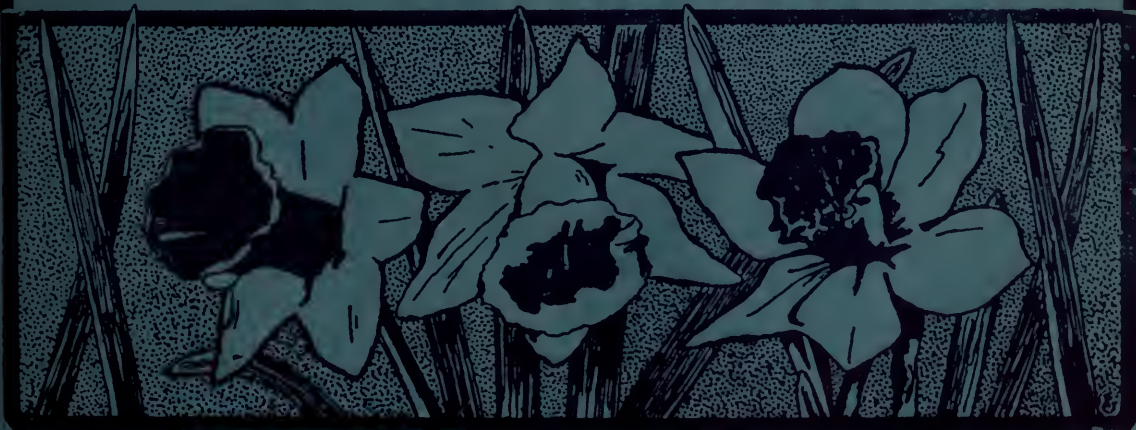
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Mendelism.

THIRD PAPER.

BY PROFESSOR JAMES WILSON, M.A.

IN last month's IRISH GARDENING we finished up with an abbreviated statement of the crucial observations which Mendel made regarding the phenomena recorded in his experiments, and stated at the same time the theory which he propounded to account for those phenomena. It may be well to recapitulate: putting the observations in ordinary type and the theory in italics:—

i. Pure species produce pure-breeding forms.

They must be furnished, therefore, with the materials for doing so.

ii. Hybrids also produce pure-breeding forms.

Therefore, they also must be furnished with the materials for doing so.

iii. Hybrids produce equal numbers of pure-breeding individuals in every type they produce.

Therefore, they must be furnished with equal numbers of the materials to produce their pure-breeding progeny.

The crucial statement is that hybrids must be furnished with equal numbers of materials. Mendel merely remarked that this could be proved theoretically—that is, from the knowledge already accumulated—and went on to prove it experimentally. It will be worth while to see how it can be proved theoretically.

If Mendel's theory be true, the hybrids between round and wrinkled peas should be giving off equal numbers of the materials to produce roundness and wrinkledness. We can represent one of them as doing so, thus:—

In the pollen :
..... R
..... w
In the ovary :
R
w

The materials for roundness in the pollen have equal chances of mating with either those for roundness or those for wrinkledness in the ovary.

The materials for wrinkledness in the pollen have also equal chances of mating with those for roundness or wrinkledness in the ovary.

But, as the materials for roundness or wrinkledness in the pollen have themselves equal chances of mating with materials of any kind in the ovaries, the chances are equal that the young plant produced by the mating of the materials in the pollen with those in the ovary shall start off with the materials RR, or Rw, or wR, or ww. The following diagram may show this more

clearly:—



Then, if a sufficient number of fertilizations



SAXIFRAGA ROCHELIANA.

take place, equal numbers of each of these four kinds will be produced; and, since R w and w R are the same, that means that one plant will start off with RR for two with R w, for one with w w. Thus :—

RR	Rw	ww
1	2	1

That means again that one plant will be pure for roundness for two hybrid for one pure for wrinkledness—that is, the plants produced by the hybrids should be in kind and number exactly as Mendel found them to be.

Consider now what should happen if hybrids in the two pairs of characters, roundness and wrinkledness, and yellow albumen and green were mated.

The materials given off by any hybrid may be represented thus :—

In the pollen :	In the ovary :
.....R	R.....
.....w	w.....
.....Y	Y.....
.....g	g.....

So far as roundness and wrinkledness are concerned, there should be equal numbers of plants starting off with the materials.

RR, or R w, or w R, or w w.

But in each of those kinds there ought also to be equal numbers starting off with the materials—

YY, or Y g, or g Y, or g g.

If we consider those starting off with RR, there should be one starting off also with YY for one with Y g, for one with g Y, for one with g g. That is to say, if there were four plants starting off with RR, these four plants should have equal chances of carrying also YY or Y g or g Y or g g; and the full materials carried by the four plants would have equal chances of being as follows :—

RR
YY
RR
Yg
RR
gY
RR
gg

But the plants starting off with R w, w R, and w w would be similarly affected as to the distribution of the materials Y and g. Thus, if there were sixteen plants in all—that is, four of each kind RR, R w, w R, and w w, and each of

these kinds were similarly affected as to the distribution of the materials Y and g, the materials carried off by the whole sixteen plants would be as follows :—

RR	Rw	wR	ww
YY	YY	YY	YY
RR	Rw	wR	ww
Yg	Yg	Yg	Yg
RR	Rw	wR	ww
gY	gY	gY	gY
RR	Rw	wR	ww
gg	gg	gg	gg

Nine plants in sixteen—those in the left upper part of the diagram—would be round with yellow albumen; three—those below—would be round with green albumen; three—those in the right upper portion of the diagram—would be wrinkled with yellow albumen; and one would be wrinkled with green albumen. And one only in each of the four kinds—those at the four corners—would breed true.

Set out otherwise there should be—

	Round and Yellow	Round and Green	Wrinkled and Yellow	Wrinkled and Green
Total	= 9	: 3	: 3	: 1
Breeding true	= 1	: 1	: 1	: 1

That is, again, the plants produced should be in kind and proportional numbers exactly as Mendel found them. Not only so, but the proportions of pure-breeding plants in each kind should be exactly as Mendel found.

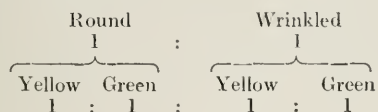
Mendel himself did not trouble about the theoretical proof, but went on to prove his theory experimentally, and, as the theoretical proof is absolutely good, we shall content ourselves with giving only one of his experimental proofs.

He mated the hybrids between round peas having yellow albumen and wrinkled peas having green albumen with both their parents. We shall take the case in which the hybrids were mated with wrinkled parents having green albumen. In this case the materials offered were—

By the pure parents	By the hybrids.
.....w	R
.....g	w
	Y
	g

So far as the round and wrinkled materials are concerned, the materials w in the pure parents have equal chances of mating with R or w in the hybrids. Thus there ought to be produced equal numbers of seeds with the materials R w

and ww, and these materials ought to produce equal numbers of round and wrinkled seeds. But each of these kinds is divided in two by the second pair of materials, which should produce equal numbers of seeds having yellow albumen and green. This might be shown diagrammatically as follows :—



In Mendel's experiment the following kinds and numbers were produced. He made reciprocal crosses, using, for male parent, at one

Kabschias for the Plain Man.

By R. LLOYD PRAEGER, B.A.

THE Kabschia Saxifrages are the most choice section of all this beautiful genus—high Alpine species, forming close spiny cushions brilliant with flower in the early spring. They are also, as a group, the most exacting and most difficult of cultivation of the Saxifrages. And again, they are a puzzling lot to name, as a strong family resemblance runs through them all. Twenty years ago, when only a comparative few were in cultivation, one could find one's way among them without much difficulty. But recently, what with the introduction of many rare or new species on the one hand and, the



SAXIFRAGA BOYDII AND FALDONSIDE.

time the hybrids at another the pure seeds, but as he found no difference produced by this we shall lump the whole :—

Round seeds with yellow albumen	:	55.
Round seeds with green albumen	:	51.
Wrinkled seeds with yellow albumen	:	49.
Wrinkled seeds with green albumen	:	53.

Thus, equal numbers of the four different kinds were produced, and we may now take it as proved, both theoretically and experimentally, that *hybrids produce equal numbers of the materials for the production of the characters borne by their progeny.*

And, since the characters handed on to their progeny are the characters got from their parents, we may take it that hybrids produce equal numbers of the materials carried by their parents, themselves, and their progeny.

Next month we shall consider a few of the more important deductions which follow from this result.

production of hybrids—generally with jaw-breaking names—of most of the existing species on the other, they are a rather bewildering group. Noticing the other day that in the catalogue of one of the leading continental growers no fewer than forty-eight different forms are listed, it occurred to me that a few notes dealing with the most satisfactory kinds—that is, those which best combine ease of cultivation with beauty of form—might be useful to rock-gardeners who have not the inclination, nor the time, nor the space, nor perhaps the cash to specialise in the group. Let me add that the red-flowered species, formerly classed as Kabschias, but now usually placed in a separate section, Engleria, are not included in these notes. All the Kabschias proper have either white or yellow flowers.

For most gardeners ease of cultivation is the most important consideration, because miffy plants usually disappear sooner or later from

any collection. In different gardens, of course, different plants will prove the most free, but in a general way we may set down as the easiest of the lot—"äusserst dankbare Sorten," as the catalogues say—*apiculata*, *apiculata alba*, *Elizabethae*, *sancta*, and *juniperifolia*. The first two of these are, for general purposes, the best of all the *Kabschias*, growing freely in any sunny, well-drained soil, and soon forming plump, spiny, dark green cushions, and being also reliable flowerers, covering themselves each year in February and March, the one with soft primrose yellow, the other with white blossoms. If I were allowed only two *Kabschias* I would stick to these two. Next may be placed the hybrid *Elizabethae* (*sancta* × *Burseriana*), which has—like *apiculata*—soft yellow flowers, but with a pretty reddish tinge on the stems, inherited from its *Burseriana* parent. It produces large dark green cushions, rather closer than those of *apiculata*, and would be a perfect plant were it not for its irregularity as regards flowering. Some years it is a joy with its wealth of blossoms, but in other years flowers are rare or absent. This feature it takes, no doubt, from its other parent *sancta*, which is a rather shy bloomer. *Sancta* forms large cushions of a peculiarly dark green colour, and bears flowers of a deep rich yellow, less conspicuous than those of the most of the *Kabschias* on account of the smaller size of the petals and the fact that they do not expand widely. When it blossoms well it is a striking plant, but its flowers are generally scarce. Last of the five, *juniperifolia* need only be mentioned as a plant to avoid. Season after season its healthy dark green cushions remain undecked by a single blossom; and when a flower does come it is a poor thing of a dull yellow. All of these are long-lived plants; clumps in my garden of from eight to ten years old are growing away merrily, showing no sign of decrepitude.

Next in order, still keeping ease and permanence in cultivation in the forefront, I would place *Salomoni*, another *Burseriana* hybrid (*Burseriana* × *Rocheliana*). This is a delightful plant, retaining the grey foliage and red stems of *Burseriana*, but bearing smaller flowers, several together on the summit of taller slender stems. While not a very abundant flowerer, it is one of the most valuable of *Kabschias*, and a right good grower. I have a plant eight years old and over a foot across, which as yet shows no sign of dying off in the middle, as so many of the *Kabschias* do after the first few years. Another excellent *Saxifrage* which has grown with me now for nine years without showing any sign of dying off is the hybrid *L. G. Godseff* (*sancta* × *Burseriana speciosa*) an *Elizabethae*-

like plant with reddish stems and yellow flowers, borne in clusters; the flowers are not nearly so good as those of *Elizabethae*, but it is a much more reliable blossomer, being covered with flowers every season.

Then we come to a large group of species which, at least in my garden (which, I think, may be taken as an average one), seldom last more than five years or so, before or after which period they turn yellowish and slowly die, just as they have formed a really satisfactory cushion six to nine inches across.

Among these the best growers include *Saxifraga marginata*, a vigorous plant with fine solid white blossoms; *Rocheliana* (see illustration) and its variety *coriophylla*, both excellent whites; *dalmatica*, an abundant white flowerer; and the delightful *caesia*, with tiny strap-shaped reflexed leaves and very late white blossoms on wiry stems. Then, of course, no rock garden is complete without some of the forms of the well-known *Burseriana*; the large flowered forms of this are perfectly glorious, but the one which has lasted best with me is the pretty little late variety *minor*. Among the yellows, the lovely hybrid *Boydii* and its still finer offspring *Faldonside* (illustrated) are real treasures, though inclined to be difficult and short-lived; and the tiny *Ferdinandi Coburgi*, with its intense yellow blossoms, is a joy—when well grown.

What makes up for the comparatively short life of these delightful plants is the ease with which they can be propagated. With the point of a blunt penknife one can detach tiny single shoots from the edge of even a small clump which are often already rooted, and if not are quite ready to strike. Pot these up singly in 2-inch pots in fine sandy stuff, and they will come straight ahead. With one or two, particularly *Boydii*, growth is so slow, and the cushion in consequence so dense, that it is not easy to detach anything; but this difficulty is rare. Even with the tiniest species, such as *Tombeanensis*, *squarrosa*, and *Vandellii*, fresh plants can without difficulty be raised from minute divisions, no larger than a split pea.

Many other lovely little plants must be left unmentioned, since my object in these notes has been to draw attention to the best growers, rather than to choice plants which are difficult or short-lived. To my mind there is greater joy in a vigorous happy clump, which is a glory of blossom every spring, than in a treasure which has to be watched anxiously through the seasons, even though the flowers of the latter may be choicer.

Cyaniding.

By JAMES MATHEWS, Killymoon, Donnybrook.

THE use of sodium cyanide as a means of destroying insect pests in plant and fruit houses is not, I believe, practised to the extent it might be, partly owing to the belief of the dangers to the operator and doubts as to its effects on plant life.

A few notes of my trials and results may be of interest and a help to many of your readers. I have used it extensively for the past three years, and the results have proved so satisfactory that now I use no other fumigant. Being a deadly poison care must be exercised in its use, and to store it beyond reach of anyone unaware of its dangers. I use Edward's patent cyaniding machine, which is specially constructed to ensure safety to the operator, and by following out the instructions given with it there is no danger either to person or plant.

It is necessary to have the atmosphere of the house dry, and that no moisture adheres to the plants, also the temperature of the house should be well under 60° F. I have had the best results with the temperature between 50° and 55°; light must also be subdued to avoid scorching the flowers and foliage. It is therefore best to operate at night. I have used it on various collections of plants in flower, and in various stages of growth, and in no case was any damage done to flowers or foliage, with one exception—a batch of *Cinerarias* was burned. These plants were fumigated in the evening, and I attribute the burning of the foliage to too much light and neglect to ventilate the frame quickly enough, although later these plants broke into fresh growth from the base and made splendid specimens. After this experience I have had no more failures, always operating at night.

After various trials in strength the quantities I now use for a greenhouse of about 9,000 cubic feet capacity are—sodium cyanide, 1½ ounces; sulphuric acid (pure), 3 ounces (fluid); water, 6 ounces; which means slightly over the eighth of an ounce for 1,000 feet space, and the cost of fumigating the house about 8d. This strength entirely kills green, white and black fly without the slightest injury to flowers or foliage. I find fumigating about once a fortnight or so is sufficient to keep the plants free of pests. *Adiantum* ferns, even in the earliest stage of growth, show no signs of injury, but they must be dry.

For the destruction of mealy bug and red spider the quantities must be very much increased. I used it in a vinery of about 15,000 cubic feet, where peaches and figs were planted on the back wall—peaches were within ten days of ripening, figs half ripe and grapes half coloured. The bugs were getting into the bunches causing much labour to keep in check. With two machines I used sodium cyanide, 3 ounces; sulphuric acid, 6 ounces; water, 12 ounces, in each machine. I reduced the temperature to 58° and kept the house closed for 1½ hours. The small bugs were killed, but those in a more advanced stage merely stupified, which recovered when fresh air was admitted. There was no trace of injury either to fruit or foliage. When I had all fruit cleared off I made another trial, using double the above quantities in each machine, the temperature also at 58°, and the house kept closed over night, opening very early next morning. All exposed bugs were killed, also woodlice, wasps and blue-

bottle flies that had been shut in the house. There was no damage done to foliage.

The operation should be repeated two or three times, at intervals of ten days or so, to kill any insects that may hatch out. Half the above strength would be found to kill them at this stage. I have observed, too, that peach trees which were infected with brown scale were completely cleared of that pest. For the guidance of anyone who may wish to try it, my own methods of working may be of some assistance.

First obtain the capacity of the house to be operated on, measure out the required quantity of water into the bowl supplied with each machine, then add the sulphuric acid in proportion and allow the mixture to cool. (Care must be taken never to pour water on sulphuric acid.) Next, single out the sodium cyanide ready for use. Fix one end of cord to lever of machine and stretch the other end outside. After closing up the house put the cyanide in the pan, then place the bowl in position, and from outside pull the cord to liberate the cyanide. Make sure all doors are secure against anyone entering the house. The gas distributes itself evenly over the house, so the effects are the same at top and bottom. In about one and a half hours fresh air may be admitted by opening the doors, and in a short time one can enter to open the ventilators.

The operation is quite simple, and I feel convinced that if carefully carried out cyaniding is safe, effectual and economic.

Saxifraga Boydii and Faldonside

BOYD'S Saxifrage originated as a chance seedling in Mr. Boyd's garden, Cherrytrees, Kelso, Roxburghshire, about 1880.

The seedling was supposed to come from a late flower of *S. burseriana* which was pollinated by *S. aretioides*.

S. Boydii is very free flowering, with greyish tufts of leaves and bright yellow flowers often almost seated on small rosettes of leaves. It is a very shy seeder, but two varieties have been raised from it—viz., *Cherrytrees* and *Faldonside*.

The true *Cherrytrees* is a stiff, now seldom seen and very difficult to obtain; a slow grower with greyish tufts of leaves and flowers, like *Boydii*, but a very pale yellow.

S. Faldonside is the finest yellow-flowered Saxifrage, with foliage like *Boydii*, but with flowers three-quarters of an inch across, borne on inch high reddish stems with glandular hairs. The flowers are a paler yellow than *S. Boydii*, but the petals are full and overlapping and slightly and prettily crimped, as in some of the *Burseriana* varieties.

These plants grow well in the moraine or in gritty pockets, and when cultivated in pots or pans a liberal addition of broken brick and mortar rubble should be mixed with the potting soil. (See illustration, p. 51.)



PRIMULA JULIE.

THIS new species from the Caucasus is now in flower and has proved hardy and free-growing when given a cool and half-peaty soil in the rockery. It somewhat resembles the common *Primrose* in habit, but has heart-shaped hairless leaves, purple flowers, and produces stolon-like growths, by which means it may be easily increased.

Hardy Bamboos.

NOT so many years ago bamboos were scarcely considered in the planning of gardens and pleasure grounds, but since the formation of the bamboo garden at Kew and the publication of Lord Redesdale's charming book their use and cultivation has extended rapidly.

There are at least three dozen species and varieties suitable for outdoor cultivation in Britain and Ireland, though some are harder than others. Ideal conditions are found where the climate is moist and equable and the soil deep and rich. Thus in the south of Ireland, notably at Fota, noble specimens are a feature of a collection rich in many other rare and beautiful plants.

Bamboos are at their best from August to February or early March, after that they begin to look shabby, and if in any way unhappy through poor cultivation they become distinctly an eyesore.

It is often desirable to form the collection in a retired part of the grounds or woodland, where during the "off" season the plants may quietly rest and recuperate without attracting much attention. On the other hand, there is nowhere bamboos flourish so well or look more suitable than by the side of a stream or lake. There, in the moist soil, the canes grow strong and the leaves are green and ample. That the plants love moisture at the root is often clearly demonstrated by those placed near a stream, the rhizomes making an unerring line for the water's edge.

The greatest enemy of bamboos is cold harsh winds, which soon scorch and wither the thin leaves, rendering the plants miserable and unsightly. When about to plant therefore it is necessary to consider the direction of the coldest wind in winter.

The soil, as already stated, should be always moist, and can hardly be too rich. To maintain the soil in fertile condition it is a good plan to give a heavy dressing of decayed manure every spring, while during the growing season drenchings of liquid manure from the cowshed are very beneficial to large clumps, consisting of perhaps hundreds of canes, and which could hardly be treated satisfactorily otherwise. Old clumps which are showing signs of poverty may be improved by lifting and dividing, or in any case considerable portions may be removed and planted elsewhere in good soil, when a fresh crop of vigorous young canes will be produced. The portion left undisturbed will soon recover with the application of fresh soil and manure around it. The best time for planting and transplanting divisions is during April and May, just before growth recommences. It is essential that the plants be kept moist subsequently, and if water is not handy a heavy mulch of leaves should be provided. Seedlings which have been grown on in pots may be planted out any time during summer, but the earlier they can be got into position the better.

The propagation of bamboos is done chiefly by seeds and divisions. As a rule, when any species of bamboo flowers, it does so in many gardens in widely separated districts—often in different countries. This is in the nature of a calamity, since usually the plants die on flowering, or become so sick for a long time afterwards that their removal is almost imperative. There is a difference of opinion as to whether some species at east would not ultimately recover, and one or two are known to flower periodically, but it is generally desirable that flowering should not take

place. Seeds, when obtainable, are easily raised by sowing thinly in well-drained boxes of sandy soil, covering the seeds lightly. If sown in spring and placed in a warm greenhouse and shaded from bright sunlight germination will soon take place. Gradual exposure to light is essential, and equal care must be taken in hardening off. When strong enough a cold frame will accommodate the young plants, protecting them from frost the following winter. In spring, again, they may be potted into small pots and grown on till strong enough to plant out in nursery quarters or in permanent positions.

Division of established clumps may be done in April and May, and consists in removing clumps of several canes with rhizomes attached, and replanting in beds of suitable soil or merely planting elsewhere in permanent positions. Cuttings may also be formed of young rhizomes, each consisting of several joints or nodes, planting them four or five inches deep in moist soil.

Cuttings are sometimes made from the canes alone, especially with scarce species. The canes are cut down to within a foot or so of the ground and carefully detached, preserving the swollen nodes at the very base. Dormant buds exist in the basal nodes, and when the cuttings are potted up in spring and placed in a warm house these buds "break" and young growths are produced. These young growths must be carefully guarded, as they are easily broken off, and the hardening off process must be gradual.

For purposes of classification botanists separate the hardy bamboos into three genera, viz.:—*Arundinaria*, *Bambusa* and *Phyllostachys*. It is unnecessary here to attempt a description of the botanical differences which separate the various genera and species. A better purpose will be served by noting the more generally useful species and varieties.

Dwarf species.—*Arundinaria auricoma*, *A. chrysanthia*, *A. Fortunei*, *A. humilis*, *A. pumila*, *A. pygmaea*, *A. Veitchii*, *Bambusa disticha*, *B. tessellata*.

Tall species.—*Arundinaria anceps*, *A. Hindsi* and variety *graminea*, *A. japonica*, *A. Kumasasa*, *A. macrosperma*, *A. nitida*, *Phyllostachys aurea*, *P. fastuosa*, *P. Henonis*, *P. mitis*, *P. nigra* and varieties *Boryana* and *punctata*, *P. Quiloi*, *P. castillonis* and *P. viridi-glaucescens*.

The dwarf sorts embrace those of a foot to four or five feet high, while the taller kinds vary from six feet to twenty feet, according to the species.

J. W. B.

Tomatoes

THESE remarks on the cultivation of the tomato are intended for the amateur gardener who has a small greenhouse, and finds a store of pleasure and many disappointments in endeavouring to cultivate most of the subjects known to him in the horticultural world in that small space. The tomato is a tender plant, but by no means difficult to grow, and fruits well during our summer and autumn months; it requires a moderate temperature, plenty of air (but not a draught) and to be grown in full sunshine.

It is very important that strong, healthy plants be obtained as early as possible. Very many failures to ripen fruit can be attributed to a late start. Seed should be sown in March. To obtain the necessary warmth at this time, where pipe heat is not available, a few loads of fresh stable manure, covered by a small frame on which the seed pan or pot is placed, will start germination; once the young plant appears it is necessary to place it close to the glass, where it will get full light, and be carefully watered. Indeed, a

very large percentage of failures can be traced to over-watering and watering with cold water. It is better to keep the young plants on the dry side than to over-water; when watering is necessary it would be advisable to soak the seed pan in a bucket of slightly warmed water, about 65° F., taking care not to wet the plants, and this should be done during the morning of a fine bright day; the frame may be kept closed, except on warm days, and it should always be shut up about three o'clock on bright days. To get it warmed by sun heat it should be covered over with mats or old sacks just before sunset, and left covered until morning: in this manner heat sufficient will be maintained to keep the seedlings growing. When the seedlings make four leaves they may be potted into small pots, using good soil, with some leaf-mould and sand warmed before potting them. They should be carefully removed from the seed pan with all the soil possible adhering to their roots, potted moderately firm, and again returned to the frame without delay: they will require shading for a week or so from the strong sun, occasionally spraying lightly overhead with a syringe or fine-roset watering can. If the soil when potting is damp, withhold water at the roots for a few days. Syringing or spraying will be sufficient until the young plants begin to make new roots, then they may be carefully watered with warmed water, more air and light being given them according as the weather permits. When the roots take possession of the soil they will require to be again potted or placed in their fruiting pots or boxes. When placing them in their fruiting quarters, whether it be a 12-inch pot or box of similar capacity, place a couple of inches of drainage at the bottom, and only half fill the pot or box with warmed soil, into which the young plant may be placed, and set alongside of greenhouse—on the sunny side of house if convenient. When they grow up, and as the weather gets warmer, they may be transferred to back or north side of house, so that they do not obstruct the light from other plants which it may be desirable to grow in same house. The single stem or cordon is the best system to grow tomatoes. This is accomplished by rubbing out any side shoots which may appear, and only retaining one growing point, care being taken not to rub out the flower spike. After the first truss of fruit is set, a couple of inches of top-dressing may be given to the plant, repeating this as the number of fruits increase, until the pot is full. The top-dressing should consist of good loam, leaf mould and sand, with about a tablespoonful of potassic superphosphate and a like quantity of bone meal. It is preferable to top-dress after this manner than to give too much or too rich a soil when starting the plants; too much or too rich a soil would tend to produce a too vigorous growth at the expense of productiveness. When the pot is full of roots they will require plenty of water daily and liquid manure once a week. Air must now be given freely, leaving a little on during the night, until towards the autumn, when the nights get cold, then the house must be shut up early to get heated by the sun whenever possible. Should the foliage get too plentiful, some may be removed, so that crowding is prevented and air and light admitted freely. All side growths and flower spikes may be removed after August in order that all the energy of the plant be concentrated on the proper ripening of the fruit then set.

W. USHER.

Dendrobiums.

THIS is a large and popular genus of Orchids which contains both evergreen and semi-deciduous species, and it is with the latter that I shall deal in the present article. They include the beautiful *D. Wardianum*, *D. aureum*, *D. nobile* with its several distinct varieties, *D. crassinode*, and *D. Pierardi*. Hybrids are numerous, and the best is undoubtedly *D. Ainsworthii*, while *D. Rolfear*, *D. Cassiope* and *D. Venus* are also desirable kinds.

CULTURAL REMARKS.—Where a collection is grown it is best to devote a house or division mainly to them, which will be more convenient for the grower, but if only a few are cultivated the warm or East Indian house should be chosen for the growing season, and a cooler and drier house during the resting period. As they pass the flowering stage, and the new growth begins to root, any repotting can be done. If they are to be arranged on the stage ordinary flower pots will prove the most useful receptacles, but if it is desired to suspend the plants, then pans are suggested, to which should be attached a wire handle. The rooting medium consists of good fibrous peat or osmunda fibre and sphagnum moss, and the pots or pans should be filled one-third of their depth with drainage, over which is laid a small quantity of sphagnum moss. Each plant must be made fairly firm, and should be held in position by a stick, as plants which are unstable in their rooting material take a long time to become thoroughly established. While these *Dendrobiums* are in a state of activity an average temperature of 65° Fahr. should be maintained during the night, with a rise of 10° or so by mid-day, while with sun heat it can still rise and no harm will accrue. The frequency and amount of watering will depend on the season and condition of the plants. For a few weeks after repotting very little direct water need be given, but when the roots are seen creeping towards the edge of the pan a more liberal supply should be the rule, and they ought to be kept moist at the root till the pseudo bulbs are fully developed. During the early stages of growth shading should be used on bright days for several hours, but from August to September, when the bulbs are approaching maturity, the shading ought to be gradually diminished, till the plants can be fully exposed to the sun. Ventilation must be regulated according to external circumstances, but an inch or so open on the bottom ventilator is advisable, both day and night, providing no direct draught is caused. The top ventilators may also be opened a little whenever the weather is favourable, but discretion must be exercised in the spring, when it occasionally happens that cold winds and bright sunshine occur contemporaneously. The chief factors in the successful culture of *Dendrobiums* are a warm, humid atmosphere while in active growth, not too heavily shaded, and a period of repose under cool and dry conditions. Black spot will occasionally appear, but this can be prevented by giving proper attention to ventilation and temperature. To keep down red spider the plants may be sprayed over, especially on the under sides of the leaves, whenever the weather is dry and hot. Thrip can be destroyed by vapourising the house or spraying with a solution of liquid insecticide.

T. W. B.

Hints to Novices.

By MAY CROSBIE.

APRIL is the month to show the first results of autumn planning and planting: with Daffodils, Wallflowers, Forget-me-Nots and early single Tulips the garden ought to be very gay. A very neglected spring-flowering bulb is the "Heavenly Blue" Muscari or Grape Hyacinth. Easily grown, cheap to buy, and most beautiful, some ought to be in every garden. Its lovely colour is enhanced by the delicious scent, and blue flowers are none too plentiful now. The blooms last for weeks in water, and as a cut flower its colour is appreciated.

Most amateurs never think of raising their herbaceous plants from seed, and yet plants bought from a nursery never give as much pleasure as those one raises oneself either from seed or by cuttings.

Most border perennials can be quite easily raised from seed by the veriest novice, and the great majority will flower the second year after sowing—that is, sown this spring they will bloom in 1915. Some varieties do not come quite true from seed: for instance, seedlings of the new pink oriental Poppies will have a certain percentage of the old scarlet type among them: a note to this effect will usually be found in the seed catalogue, and it is as well for the novice to avoid such varieties. Get the seeds in as soon as possible so as to have good strong plants in the autumn. They can either be sown in boxes or the open ground: boxes are to be preferred, for one reason slugs and such pests, can be more easily guarded against. If boxes are to be used, prepare a nice bit of soil—old potting stuff mixed with leaf-mould and sand will do admirably. Provide drainage first by making holes in the bottom of boxes (if they are not already there), place a layer of cinders or broken crocks in the bottom and over that some moss to prevent the soil working down and clogging the drainage holes. Fill up with prepared soil, scatter seed thinly,

cover lightly, water in, and stand box in a shady place.

If seed is to be sown outside, choose a shady place, a border facing east or north-east; make the soil as fine as possible, and when seedlings appear slugs must be guarded against. Thin seedlings and they can be transplanted in the autumn straight to their flowering quarters. Anchusas, Delphiniums, Lychnis in variety, Heucheras, Pentstemons, Pyrethrums, Rudbeckias are only a few popular perennials any beginner may raise from seed satisfactorily and cheaply too. To make a couple of clumps of

any of these would take at least six plants costing about 2s., whereas with a little trouble dozens of plants could be raised from a 3d. packet; and the increased interest they would have would make up for the loss of one season's bloom.

Tree Lupins, both yellow and white, come very freely from seed, and as they have a habit of dying off after five or six years it is necessary to have some young plants to take the place of any that go. Sow thinly outside, and pinch the seedling when a few inches high to make it branch: lift with a ball of soil direct from seed bed to permanent place, disturb roots as little as possible, because in common with the brooms they dislike being moved. Both for garden decoration and

for cutting, tree Lupins are invaluable. The herbaceous Lupins can be just as easily grown from seed.

Carnations are interesting things to raise, a packet of seed from a reliable source will give fine strong plants in a wonderful variety of colour—selfs, picotees and stripes in every shade. But in every batch there will be a certain percentage of singles, and it is a good thing to remember when pricking off to reject the strongest coarse-looking seedlings, as they are usually the single. Sow in April, prick off when about one inch high again into boxes, and plant in flowering quarters in September or October.

No hardy bulbous plant is worth an amateur's time to raise, as most of them take several years to grow from seed before they flower.



Copyright]

ROMNEYA COULTERI

[Mackev

Romneya Coulteri

THE accompanying photograph depicts a bed of this beautiful shrub or sub-shrub which flowered exceptionally well in these gardens during the past summer. Six small plants raised from seeds were planted four years ago on a raised bed in quite an open part of the Rose garden.

The soil here is a sandy loam, and beyond giving the bed a heavy mulch with decayed manure as soon as the plants are cut down in late autumn, they receive no special attention.

In sheltered positions I have seen this lovely poppy withstand the winter without any mulch or protection, in which case it will sometimes reach the height of 15 feet; but I am convinced that the flowers are produced in greater quantity and of better quality from shoots produced annually from the base of the plant.

In private establishments the flowers are very useful for decorative purposes. A large vase lightly arranged always proves an attraction, and if cut early in the morning before the sun strikes them they will last in good condition for four or five days.—J. B., Oak Park Gardens, Carlow.

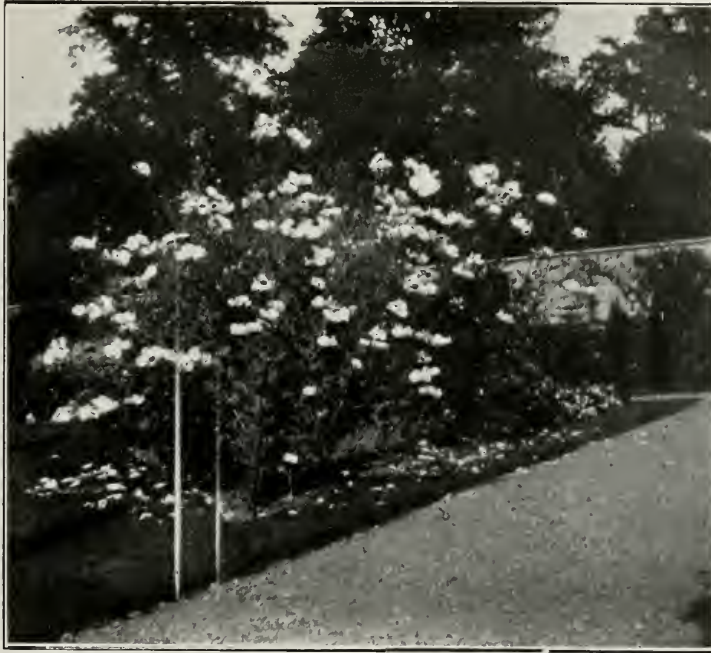


Photo by]

[Jas. Besant.

A BED OF ROMNEYA COULTERI, at Oak Park,
Co. Carlow.

roots, have good clean pots, 9-inch or 10-inch for preference. Clean pots are most essential, as they have to be left so long in them; on top of the crocks place a layer of moss to ensure sufficient drainage, so as to keep the soil from becoming sour during the growing season. The Arum Lily thrives very well in a rich loamy soil—viz., five parts loamy soil, one leaf-mould and two parts well rotted manure, old hot bed manure for preference, mix all together without sifting it, for the coarser the compost is the better, and to each barrow load put a 6-inch potful of fertilizer, such as Clay's. Very good results can be obtained from putting five crowns in each pot; first put in a little compost on top of the moss, then place the

crowns evenly, and with a little rammer or blunt stick firm the soil as it is placed all around the crowns.

When the potting is done place the plants in a frame till November, carefully covering on all nights that show the least sign of frost.

Bring them into the greenhouse in the aforementioned month, keeping them near the glass at all times except in frosty weather, when they should be lifted back from the glass at night time. During the growing season never let the soil become dry, always keep them well supplied with water, and once a fortnight

feed them with weak liquid manure, increasing the supply and strength as the plants grow, and when coming into bloom feed twice a week, and give them clean water between times, having it about the same temperature as that of the house.

I always feed the plants for six weeks after blooming to strengthen them for the following season, and keep them watered till they nearly die down or go to rest for the summer.

Most people, as a rule, plant them outdoors for the summer. I have tried drying some off completely and planting some out in the ground, and I find the ones dried off completely make better plants and give larger spikes of bloom.

Greenfly is their worst enemy here, and that can be easily kept down if, as often as it appears, you fumigate.

The Cultivation of Arum Lilies.

By JOHN CLEARY, Presentation Convent Gardens, Baltinglass, Co. Wicklow.

No greenhouse seems complete in spring without some specimens of the beautiful white Arum Lilies. To obtain the best results they need plenty of space, and resent being too crowded.

After they have finished flowering they may either be dried off in their pots or planted out for the summer months in the open ground. If planted out doors for the summer, raise them in September and shake all the soil from the

New Plants in Flower at Glasnevin.

RHODODENDRON LONGISTYLUM.

THIS new Chinese species promises to make a pretty bush suited to the rockery. It is allied to *R. micranthum*, but the flowers are more tubular, about $\frac{3}{4}$ of an inch across, white, with red spots. The leaves are lanceolate in shape, about 2 inches in length. The style is very long and protruding, hence the specific name.

RHODODENDRON DAVIDII.

This species is making a moderate-sized bush, but in China is said to grow 20 to 30 feet high.

The flowers are borne in clusters, and before opening are a beautiful deep rose, 2 inches across, but when open they lose the rich colouring and become quite pale. The leaves are narrowly oval, about $2\frac{1}{2}$ to $3\frac{1}{2}$ inches long.

PRIMULA PYCNOLOBA.

A decidedly weird Primrose introduced by Veitch in 1906 from Wilson's seeds collected in China. The hairy leaves are broadly heart-shaped, 3 to 4 inches across; the flower stem is 6 inches high, and carries small narrow tubular flowers, green tipped with red. The green calyx is much larger than the corolla, ending with long segments and giving the flowers an appearance distinct and apart from all other Primulas. It is a curious plant, having no claim to beauty, and may be propagated freely from root cuttings.

PRIMULA INAYATHI.

This new Primula comes from Kashmir; it is an interesting species, but the flowers are too small to be of much decorative value. They are mauve, with a yellow eye, nearly $\frac{1}{2}$ an inch across, borne in a whorl on stems 4 inches high. The leaves are 3 to 5 inches in length, and only $\frac{1}{2}$ an inch broad; the upper surface is green and the under surface covered by yellow farina. The flower-stem and calyx are also mealy.

COCHLEARIA SEMPERVIVUM.

THIS is a very quaint plant from Asia Minor; its winter stage mimics a house leek, being a rosette of stiff glaucous and succulent leaves, about 3 inches across. At present the flower-stem is about 5 inches high, clothed with grey leaves and small white flowers.

NARCISSUS SIR HORACE PLUNKETT.

THIS is one of the finest of the new early daffodils, with bold outstanding flowers, 5 inches across the perianth segments. The flowers were open early in March, and are carried on sturdy stems. The trumpet is large, golden and recurved at the mouth, the perianth segments are primrose colour.

C. F. B.



NARCISSUS P. R. BARR in foreground and MINNIE HUME in the distance, growing in the grass at Straffan House, Co. Kildare.

Daffodils at Straffan.

DURING April and May the daffodils at Straffan are a lovely sight; planted in the grass they retain their beauty undimmed and unsoiled until they fade. Massed together, and each variety given a good space to itself, is the way they show to advantage.

Golden Spur is one of the earliest, and its deep yellow trumpet flowers are always bright and welcome; Sir

Watkin soon follows, and is a good doer; Empereur grows very strong in the grass, and planted in front of Mr. Bedford's house always makes a great display. The Leedsii varieties, although not so strong in growth as the former ones mentioned, have a refined beauty, and their pale colours make an appeal to the æsthetic taste.

Narcissus Barrii conspicuus, planted in a woodland spot, opens its flowers to show its bright orange cups at the end of the month, and is a variety which lasts well, and is also an excellent cut flower.



MR. HARRISON DICK, formerly editor of the *Journal of Horticulture*, is now editing the *Florists' Exchange*, New York and Chicago. The 25th anniversary number contains many very interesting articles and numerous illustrations and photos of the leading American horticulturists.

“Les Plantes des Montagnes et des Rochers.”

WITH the number of rock gardeners daily increasing a demand has been created for suitable literature, which experts and others are doing their best to meet, and scarcely a month passes without some addition being made to the growing collection of works upon alpinism. There was a time when I read with avidity every work upon the subject that I could get hold of, but I soon found it was very necessary to discriminate, and having weeded many of them out I eventually selected some four or five which seemed to me to be the most practical and authoritative—these I keep on my table for daily reference. But their number must now be increased, for to them must be added a very notable contribution from the pen of Mons. H. Correron, of Geneva.

Mons. Correron's reputation as a collector and cultivator of alpinism is world wide; he has already done much, both by his articles in the gardening press and by his books, to promote the successful cultivation of alpinism. I have not seen his “Atlas des Fleurs Alpines,” but I am acquainted with most of his other works, and while I am grateful to him for the help I derived from them I am especially grateful for his latest work, which contains matters of unusual interest which I can see will prove of inestimable assistance to me. Mons. Correron has the knowledge, and also the art of imparting that knowledge, and to anyone who desires a compact up-to-date, handbook on the subject, suitable for daily reference, I would urge the desirability of their acquiring a copy without delay.

The book is full of good things. The beginner is provided with instructions and diagrams which should enable him to construct and furnish rock and wall gardens. The collector is taken to the mountain tops and shown the plants *in situ*, with their aspects, habits and soils; he is shown where to collect them, and how to acclimatise them in the rock garden when collected; and to those who, like Mons. Correron, prefer to raise their stock from seeds, careful instruction as to the raising and handling of seedlings is given, and there are special chapters on “difficult” plants and special methods of culture—such as moraines and peat beds. But the larger portion of the book—some 400 pages—is devoted to a catalogue of plants in cultivation, with notes upon them, which are so extremely valuable that the work is indispensable for them alone. There are few of us who have not paid dearly for an insufficient knowledge of new plants. For instance, one receives some additions to our collection and plants them out by guess work only to find when they are well established that the tall and rampagous plant is in front and the smaller and weaker ones behind it. This is a common but very irritating mistake from which Mons. Correron's book should save us in the future; and this is not all, he not only gives one the height of the plants but also their colour, time of flowering, habitat, methods of culture and of propagation.

I confess myself greatly pleased with this list, and I have hastened to get it extra strongly bound, as I foresee it will be in daily use in my garden. Of course the list is not complete; even a man of Mons. Correron's vast experience cannot have seen and grown every plant in cultivation,

but as far as it goes it is the most complete that I have seen, and I trust, as time goes on, that he will issue appendices on the same lines to make his list even more complete.

Space will not allow me to touch upon all that the book contains, but I think I have detailed enough to convince the keen rock gardener of its exceptional merits.—MURRAY HORNIBROOK.

The Small Rock Garden.*

YEAR by year the little mountain plants seem to gather more devotees; at first one may be attracted by their brilliant and comparatively large flowers, from that stage the beginner commences cultivating them, and ends with trying to outvie his neighbour in his successes with rarities. Garden literature keeps pace with the growing demand, and we can say Mr. Jenkins is a writer of long experience, which, after all, is the best teacher.

The author treats with the subject in a practical manner, dealing with the best site—an open one—at a distance from trees, which are such cruel robbers; rocks and soils are discussed. In planting, “massing” plants of one kind is advised, and this is the keynote of success if a showy and effective rockery is the object. Chapters are given upon wall gardens, moraines, bog gardens, and all such adjuncts to the modern rockery, while in the lists of plants much information is given in a tabulated form.

There are some mistakes in the spelling of botanical names needing correction, while we consider the chapter on the moraine rather weak. *Epilobium Dodonai* can thrive without the moraine in nature, and in the garden is a bit of a ramp. *Ramondias* also can well do without help of the moraine and look far better in a half-shady rock wall. In the chapter on “Undesirable Plants for the Rockery,” *Convolvulus althaeoides* is mentioned, the true plant, but is not a “runner,” although *C. tenuissimus*, which is often sold under the former name, is a great spreader, and is probably the one intended.

The book is cheap, well printed, and finely illustrated, and should be a help and guide to many of those taking up the culture of Alpines.

* “The Small Rock Garden,” by E. H. Jenkins. Edited by F. W. Harvey. The Offices of *Country Life*, 20 Tavistock Street, Covent Garden, W.C., price 2s. 6d.

The Manuring of Market Garden Crops, 1913.*

THIS new edition is not only useful to market gardeners, but to all vegetable growers.

The experimental work has now reached its 20th year, and has been carried out on the farm of one of the authors at Hadlow, Tonbridge.

In nearly all cases it shows how a saving in cash is effected by giving a light dressing of dung aided by artificials, instead of a heavy dressing of dung alone; except in the case of early potatoes, where a heavy dressing of stable manure has given the best results. This appears not only as an average conclusion, but it holds good individually for 12 of the 17 seasons of the tests.

* “The Manuring of Market Garden Crops, 1913,” by Bernard Dyer, D.Sc., and F. W. Shrivell. Published by Vinton & Co., 8 Bream's Buildings, Chancery Lane, E.C., price 1s., post free.

Mucklagh.

SEVEN miles from Aughrim, along a continually ascending road, brings one to the mountain home of The O'Mahony, about 6,000 feet above the sea level, among the beautiful Wicklow mountains. My visit was made when the gorse was in full flower, and such a wealth of colour that one might well ask: Is there any exotic shrub to equal the Irish Whin? No wonder the great Swedish botanist Linnaeus on first seeing a common of gorse in Britain fell down in worship. Headlands and roadsides were a mass of yellow, and now and again the eye is attracted by a particularly deep golden bush, or may be a lemon yellow form, which would be well worth selecting for the garden. A small belt of spruce, where both hawk and magpie nest, gives some shelter to the house on one side, while at the back are young plantations of Scotch and Corsican pine making excellent growth; right up the mountainside this belt runs mixed with larch, and with a stretch of *Pinus montana* at the highest point.

Near the shelter of the house many choice shrubs thrive in a surprising manner, and, owing to absence of lime, the *Erica* and *Rhododendron* family are quite at home. The bronze foliaged form of our native ling, *Erica vulgaris* cuprea, massed boldly, is handsome and bright throughout the year. Good forms of *Erica cinerea* and others had been collected on the mountain sides.

Although tender in many of our gardens, *Rhododendron ciliatum* seemed quite happy at Mucklagh in a sheltered corner, while in a sunken dell by a stream side many fine hybrids and species were thriving luxuriantly. Some of the leaves of a young plant of *Rhododendron Falconeri* measured 18 inches in length.

Griselinia littoralis is an evergreen shrub with light green foliage, which The O'Mahony has found to withstand the strong winds, and is most useful in giving shelter to more tender subjects, so it is being increased rapidly; cuttings a foot long, planted in early autumn, were already making roots. The O'Mahony also has a novel way of striking it in bottles of water. Rows of perrier water bottles were standing in one of the windows of the house with cuttings rooted and unrooted.

The rock garden is of a good size, but newly

built. In front of the house is a retaining wall gay with many trailing plants, and an interesting fountain shown in our illustration is made from the stone of a Baltinglass jail door, Turkish marble, and a Bulgarian fountain head.

On the right *Lithospermum prostratum* makes a beautiful mass of blue, while hanging over the fountain are showers of golden yellow produced by *Alyssum saxatile* and *Erysimum rupestre*. The source of the water which feeds the fountain and supplies the house is rather interesting. When working in the plantation above the house The O'Mahony struck a rock, and he said: "I felt like Moses when a clear spring of water gushed forth." The water from this spring feeds a small stream which meanders through the rockery. Along the sides of the bank were fine



A BULGARIAN FOUNTAIN AT MUCKLAGH, COUNTY WICKLOW.

flowering groups of the water loving Primroses, as *P. japonica*, *pulverulenta*, but the most interesting of all was the rare *P. deorum* in flower, which The O'Mahony had brought back from Bulgaria. Although not always found by water, yet this rare Primula seems always to flower more freely by the side of or near a stream. Success had rewarded The O'Mahony's efforts when he planted it by the stream side with the roots below the level of running water. The viscid flower stem was 7 inches high, bearing beautiful deep violet purple flowers three-

quarters of an inch across, the tube measures the same, with a calyx half the length of the tube. The leaves are 3 to 4 inches long, by $\frac{1}{2}$ in. to 1 in. broad, often covered with a whitish substance.

There is an exceptionally fine example of a wall garden, which was built some years ago by The O'Mahony, and in spring is the brightest spot in the garden. This wall garden is about 6 feet high and 15 yards long. It was built with stones gathered on the mountain side, about a foot in front of an existing wall, and when building the space was tightly packed with mortar rubble mixed with a small quantity of soil. At the base of the wall is a small rockery border. On the wall the *Dianthus* family make nice short growths and cover themselves with flower. *Erysimum rupestre*, *Erinus alpinus* and some of the mossy Saxifrages were all gay with yellow, mauve, and white flowers, and showed how thoroughly at home they were by seeding themselves freely on the wall. Houseleeks and Sedums are to be seen side by side with such

plants as *Onosma tauricum*, *O. alba roseum*, *Hypericum*, *fragile* *Linarias*, *Achillea Kellereri*, *Campanula garganica*, *C. haylodgensis* and *C. velutina*, *Thymus lanuginosus* and the encrusted *Rockfoils*, &c. Even the *Haberlea* and *Cystopteris fragilis* *Dickeana* were living in this mortar rubble mixture. The lime in the rubble seems to absorb moisture from the atmosphere, and it apparently suits many subjects. At the base of the wall a patch of *Helichrysum bellidoideis*, 2 feet across, was covered with daisy-like everlasting flowers.

Is the Day Nettle Poisonous?

(*Galeopsis Tetrahit*).

IN glancing over the provincial news column of the *Irish Times* of the 11th January last year, the following paragraph caught my eye:—

"Compensation for Nettle Sting. — At Derry Recorder's Court yesterday, before His Honor Judge Todd, K.C., an application came up under the Workmen's Compensation Act, in which a labourer named John Donnell, of Mobouy, sought compensation under peculiar circumstances from Messrs. R. & T. Stuart, Spencer Road, Derry. It appeared that in September Donnell was employed by the defendants in harvesting operations at Greenan, and when lifting corn got stung on the middle finger of the right hand by a day nettle. Blood poisoning ensued, with the result that a bone had to be taken out of the finger. An agreement was arrived at by which the applicant was to receive £1 1s. 6d. compensation and £1 costs, and His Honor made this agreement a rule of Court."

The name Day Nettle here applied to some cornfield weed, being quite unknown to me, though evidently familiar to Ulster folk. I wrote for information to a friend in Derry. From him I learned that the name was in common use in Derry and Donegal where it was applied, not to either of our stinging nettles, *Urtica dioica* or *U. urens*, but to *Galeopsis Tetrahit*, a member of a different order, the Labiate. My correspondent further informed me of a second instance which had come to his knowledge of maiming due to contact with this noxious plant. The sufferer in this case was a Donegal clergyman

who lost a finger through mortification induced by a sting or jag of the Day Nettle.

This species is widespread in Ireland, and is especially abundant in non-calcareous soils, yet hitherto I have failed to find for it any native Irish name in current use. In the Scotch Highlands *Galeopsis speciosa*, a closely allied species with handsome yellow flowers, is abundant. According to Cameron (*Gaelic Names of Plants*) this is known there by the Gaelic name *An gath buide* (the yellow dart) and *An gath mor* (the great dart), and is "troublesome to the reapers in harvest time from its bristly character." The Ulster name, Day Nettle, is no doubt an importation. It is in use in Yorkshire and on the Scottish Border, and is probably a corruption of dead nettle. On the Scottish Border, as in the Highlands and in Ulster, the plant is one of ill

fame. In the Border counties "labourers in harvest are sometimes affected with whitlow, and they ascribe the disease invariably to the sting of the Deye Nettle" (*Bot. Eng. Border*). In English Floras the plant is usually spoken of as the Hemp Nettle, but this would appear to be rather a book name than a name actually current in folk speech.

To return to the query which heads this article, can we assign to the Day Nettle (*Galeopsis Tetrahit*) the possession of any poisonous principle such as occurs in the sting of our common nettle? As is well known, the stinging bristle of the common nettle carries a poisonous secretion which is injected into the wound caused by the sharp point of the bristle. In the Day Nettle the mature



PRIMULA DEORUM AT MUCKLAGH, COUNTY WICKLOW.

calyx is armed with strong sharp spines which appear to be solid and unjointed. The stems, too, are closely beset with weaker spines or bristles which, unlike the calyx spines, are jointed and apparently tubular. The number of joints in these stems spines is four, the fourth or terminal joint being very sharp. It may be that these spines are receptacles of some poisonous secretion which in some cases is potent enough to give rise to mortification, so that the ill effects of handling the plant should be attributed not so much to the formidable calyx spines as to the weaker armature of the stem. In none of the score of botanical works which I have consulted can I find any reference to the noxious properties of the plant. Can any reader of *I. G.* throw further light on the subject?—N. C.

Trees and their Varieties.

PROFESSOR A. HENRY, M.A., F.L.S., of the Royal College of Science, delivered a lecture, entitled "Trees and their Varieties," in the theatre of the Royal Dublin Society recently. The Austrian pine differs from the Corsican pine in retaining its leaves a year longer, and is thus enabled by its dense and copious foliage to keep some moisture in the dry limestone rock on which it grows naturally in Servia. The lecturer described the nature of sports, each of which arises as a solitary and often inexplicable phenomenon, either as a rare seedling or as a single branch, with some strange peculiarity on an otherwise normal individual. Such sports when once found are habitually propagated by layering or grafts. Numerous slides showed different kinds of sports in trees, weeping and erect forms, varieties with bizarre foliage (coloured, puckered, deeply-cut leaves), dwarfs, trees, with all their branches curved and twisted. Some of these varieties, as the simple-leaf ash and the Irish yew, can be explained as individuals that have retained the features of the young seedling, and have never taken on the adult form, which, as a rule, differs materially from that of early youth.

A good specimen of the fine Irish yew at Seaford, Co. Down, was contrasted with the wide-spreading common yew at Crom Castle, Fermanagh, under whose shade two hundred people had sat together at dinner. This famous yew, which is probably the oldest tree in Ireland, dating back to pre-Christian times, is said in the "Contention of the Bards" to have been discovered on the day when Con of the Hundred Fights was born (A.D. 127) and is, perhaps, an ancient sacred tree dedicated to the worship of the idol Crom Cruach.

Professor Henry next dealt with another class of trees, those which originated by hybridisation, and he showed how the two classes of sports and hybrids can be clearly distinguished. Hybrids, especially those of the first generation, usually show exceptional vigour. In the United States when two kinds of maize, one producing 42 bushels and other 17 bushels per acre, had been crossed their progeny gave no less than 127 bushels. First-cross trees had hitherto only been obtained by accident, as when two allied species stood together in the forest or in the nursery and had given rise to a chance hybrid seedling. To such haphazard seedlings, picked up by observant nurserymen, we owe many valuable trees, such as the Huntingdon elm, the black Italian poplar, the cricket bat willow, and the common lime. One of them, *Populus robusta*, found in a nursery at Metz, has actually attained in fourteen years on the poor soil at Glasnevin a height of 45 feet.

Professor Henry has during the last three years been making crosses of ash, alder, and poplar, some of which are of remarkable vigour and beauty. The manner in which the different characters of each parent combined in the offspring was well exemplified in the case of the seedlings of the Huntingdon elm, raised by Professor Henry, which followed the laws discovered by Mendel. The lecture was illustrated by numerous plain and coloured slides.

The Month's Work.

The Flower Garden.

By WM. G. WADGE, Gardener to Lady O'Neill, Shane's Castle, Antrim.

SPRING bedding is at its best this month. The weather, the first half of March, was not kindly in this district to young growths and opening flowers. A few days of bright sunshine, however, makes a wonderful change. Look over the beds of seedling *Polyanthus* and mark any plants of inferior habit or carrying blooms of poor size or colour; these can be destroyed later when lifting the plants after flowering. If seed is wanted, the largest and brightest trusses can be marked at the same time by tying a small piece of raffia round them.

LAWNS.—Mowing will now need constant attention. No time is saved by letting the grass get too long between the mowings. Any places that are to be sown with grass seed—the soil having been dug during the winter—should now be finally levelled and raked over on a dry day. Sow the seed at the rate of 1 lb. for 20 square yards, or the same quantity for 70 square yards when renovating patches where the grass is thin. If birds are numerous it may be necessary to use some precaution against them picking up the seeds.

ROSES.—All Rose pruning should be finished early in April. Full instructions were given in IRISH GARDENING last month. After pruning is finished, and the rubbish gathered and burnt, give the beds a top-dressing of cow manure and a sprinkling of bone meal, and fork it into the surface. When the soil has dried somewhat and can be raked down *Violas* may be planted as a groundwork for the Roses. Probably no exhibitor would think of growing *Violas* or any other plant beside the Roses in his beds, but for garden decoration it answers well. The *Violas* show to advantage massed one variety to a bed, and if the soil is manured liberally the Roses will not suffer. As soon as growth begins look out for caterpillars, a curled leaf will apprise us of the whereabouts of the enemy. Handpicking is the only remedy.

SHRUBS.—Planting is practically finished now, although many things may still be planted; large bamboos and hollies can be transplanted with more certainty of success on a showery day in April than at any other time. All shrubs recently planted should be examined to see they are not being shaken unduly at the base by wind, and if drying weather prevails it may be necessary to water them, after which a mulching of manure should be placed around them. Shrubberies that were dug and left rough early in the year will rake down well now after drying winds. The raking will leave a finished appearance, and the fine surface soil will prevent rapid evaporation; besides, it will be easier for subsequent hoeings.

BOX-EDGING may be put in order now. Where it is in good condition, a cutting over with a scythe or the garden shears will be all that is needed. Should there be any blank spaces in the lines, make these up first. If the plants are aged and very bushy lift the whole and replant, using the younger rooted pieces.

PENTSTEMONS and **CHRYSANTHEMUMS** may be planted before the end of the month if the weather is favourable. Give the former 10 inches between the plants and the latter 1½ feet to 2 feet. The early flowering Chrysanthemums are good subjects for massing in large beds on the lawn, or in front of shrubberies; patches of them in the mixed borders are also very effective. They are very accommodating; planted in soil that adheres to the roots they may be lifted at any season, even when in bud. For this reason a number should be planted on a reserve border; they can then be utilised for filling spaces in borders that are cleared of *Nigella*, Candytuft and other annuals. A few reliable varieties are Japanese:—Cranford Pink, Marie Masse, White Marie Masse, Crimson Marie Masse, Elstob Yellow, Goacher's Crimson, Bronze Goacher's Roi des Blancs, Perle Châtillonnaise, Pompons:—Flora Little Bob, Mrs. E. Stacey, Piercy's Seeding.

CALCEOLARIAS.—The points should be pinched out of these. When breaking again freely plant them in skeleton frames, 6 inches apart, in good soil. They succeed better when planted in their summer quarters early: they get established then before hot weather comes in and are less liable to die off in midsummer—a nasty habit they have sometimes.

SWEET PEAS, both autumn and spring sown, should be planted this month. Stake as soon as planted, the protection afforded thereby may be very welcome. Dust a little soot over and around the plants twice a week and look out for slugs.

VIOLETS.—The outdoor plants have produced flowers in plenty during March, and are now growing freely. If cuttings were rooted in the autumn, plant them out now. If division of the old plants is relied on for stock, wait till a good quantity of side growths can be taken off with roots attached. Choose a dull, calm day, and keep the plants in a pail containing a puddle of soil and water while planting proceeds. Where the natural soil is hot and dry, plenty of rotten cow manure must be worked into it, and a position partially shaded from the sun chosen. Red spider is the chief enemy of Violets, and a cool moist root run and frequent syringings are the best preventatives. The double varieties need a distance of 9 inches apart, and the singles 15 inches. The best varieties are—single, La France and Princess of Wales; double—Marie Louise, Lady Hume Campbell and Neapolitan.

THE FRAME YARD.—Frame space will be greatly taxed this month. All except the most tender subjects should be in cold frames by the end of the month. Harden plants carefully. A severe check is not soon got over. Keep the lights closed for a few days, and shaded from the strongest sunshine if the occupants have been in a shaded position previously. Later, ventilate freely, removing the lights entirely on good days. Keep mats in readiness in case of frost at night. When water is needed apply it in the morning.

The Fruit Garden.

By PETER BROCK, Horticultural Instructor
for Co. Fermanagh.

THE weather during February and the first half of March has been so wet and stormy that very little could be done in fruit plantations. Those who missed getting winter spraying done in

January have not seen many days since when this work could be done satisfactorily. Some have the spraying material, but they are afflicted with procrastination that keeps them dragging behind with all work and in all sorts of seasons.

Grafting will now require attention as directed in last month's IRISH GARDENING. When the weather is dry attend to hoeing fruit tree borders and plantations. It is false economy to let this work fall into arrears. Keeping a clean, loose surface round fruit trees and bushes of all kinds during the growing season conserves moisture and stimulates root action. On heavy land or where the surface is hard or crusted from the effects of heavy rain the "Bucco" cultivator is the most useful implement for surface cultivation, forming a mulch of loose soil that will dry quickly, and may afterwards be more economically kept in good condition with the hoe.

Apple trees in full bearing condition and with a promise of abundant blossom will—especially if potassic superphosphate or similar artificial manure has recently been applied—derive great benefit from a timely application of nitrate of soda, which stimulates and assists them over the flowering period. The first dressing may be given when the buds are opening, and applied at the rate of half to three-quarter pound per twenty square yards. To ensure even distribution, the soda should be mixed with about four times its bulk of finely-sifted soil or ashes. Trees respond most quickly to this stimulant in showery weather. It is, however, not advisable to wait for showers; if the weather be dry the surface may afterwards be hoed, or the "Bucco" cultivator may be used to good advantage to loosen the surface. A second application may be given as the trees are about to unfold their blossom. Any weakly pear, plum, or other fruit tree or bush should not be overlooked.

SPRAYING FOR SCAB AND CATERPILLARS.—The best time to cope with these pests is when the trees are coming into leaf—i.e., when the leaves are well opened, and before the blossom opens—then, immediately after the blossom drops, a third and even a fourth spraying may be required at intervals of fourteen to twenty days after the second spraying, according as the season may be favourable or otherwise for the development of scab. The spray should be applied in a very fine cloud-like mist from a small nozzle, and under a pressure of about 100 lbs. to the square inch. Keep swinging the nozzle, directing the spray so that the whole of the tree may be evenly dewed without drenching or causing drip from any part. Sprayers with pressure gauges are essential in maintaining a uniform high pressure. The "Holder" type of knapsack sprayer, with pressure gauge, and made of virex-brass alloy, for lime-sulphur, is the best of the knapsack type I have met with for applying a very fine mist. With this sprayer the operator has both hands at liberty to direct the spray from an extension tube or lance to a greater height than could be done with one hand. Recent experience has shown that arsenate of lead when combined with lime-sulphur acts effectively in destroying caterpillars, while it also increases the fungicidal effect of the lime-sulphur and lessens its scorching action on the foliage. Even where caterpillars are not in evidence it pays to add arsenate of lead to lime-sulphur for its fungicidal effects alone. I have found one gallon of commercial lime-sulphur and 2 lbs. arsenate of lead to fifty gallons of water a safe and effective fungicide in con-

trolling scab on Bramley, Grenadier and Blenheim Orange. One orchard was sprayed three times last year at above strength, and a fourth spraying at 1 to 60 with lime-sulphur alone was applied lightly the first week in August. These trees are now practically free from eggs of apple sucker, although very plentiful last spring. I am of the opinion till I see further tests, that lime-sulphur renders the trees untenable to adult suckers. Varieties like Cox's Orange, Duchess of Oldenburg, Allington, Gladstone and Lane's Prince Albert—the latter showed some scorching with lime-sulphur alone. I would recommend spraying these and similar delicate leaved sorts with one gallon lime-sulphur to 60 or 70 gallons of water. Herrod's scab and caterpillar paste, and a similar paste made by Voss, of London, have also shown good results. The success of fungicides largely depends on their timely application in advance of the fungus disease they are intended to subdue. If scab gets a footing fungicides may check its virulence, but it is invariably at the expense of the scab affected leaves dropping more quickly than if they had been left unsprayed, then the spray is forthwith condemned and publicly denounced as being worse than the scab disease itself.

STRAWBERRIES.—These should now be hoed and thoroughly freed from weeds without delay; afterwards a good dressing of soot sown broadcast, just enough to blacken them well, and then hoed in will act beneficially in reducing slugs for the remainder of the season. Collect suitable litter to spread between the plants to prevent the fruit from getting splashed.

The Vegetable Garden.

By ARTHUR HORTON, Gardener to Colonel Claude Cane, St. Wolstan's, Celbridge.

ASPARAGUS.—Early in the present month is a suitable time for making new beds of asparagus. The preparation of the bed is a very important point, and in all cases should be well drained. If thoroughly made and the plants get well established, with ordinary care they will remain productive for a great number of years. A deep friable loam is the most suitable for this vegetable, but it will thrive on most soils if proper care is given to the preparation and planting of the bed. Beds 4 feet in width and allowing an alley of 2 feet between each bed will be found most suitable. Trench at least 3 feet deep, and give a good dressing of fresh farmyard manure as the work proceeds. On heavy retentive soils give a good coating of road scrapings, lime rubbish and wood ashes, and raise the bed 9 inches above the ground level. Three lines will be found sufficient: one in the centre and the two outside ones 9 inches from the outside of the bed. In planting, make a wide drill about 4 inches deep, and spread out the roots evenly and carefully, shake fine soil through the roots, and if dry give a good watering. Many cultivators prefer raising their own plants by sowing the seed either on the permanent bed or in lines in some other part of the garden, then thinning out to one foot apart and transplanting the following April. Undoubtedly this is to be recommended, as the plants being on hand the work can be carried out more carefully and anytime when the weather conditions are favourable. This is most important, as the roots if exposed for any length of time and allowed to get dry will be very weak, and many of the plants will fail to

grow. Therefore the work should be carried out on a dull day as carefully and expeditiously as possible. The rough manure applied in November to established beds should now be raked off. A good sprinkling of salt will be found very beneficial, especially on light soils. Later on, when growth has commenced, a few light dressings of artificial manure should be given.

GLOBE ARTICHOKE.—The present month is a suitable time for making a fresh plantation of this useful vegetable. Propagation by suckers is preferable to sowing the seed, as plants from the latter cannot be depended upon. Procure suckers from a good variety, and great care should be taken when removing them from the old plants to leave as much soil and roots on as possible, otherwise they may fail to start. Plant singly, 3 feet apart, in deep rich soil. If the ground is in any way dry give a good watering, and earth up each plant with finely sifted coal ashes, which is a great preventive against slugs, and mulch the ground between the plants with long stable manure to prevent undue evaporation. When suckers are not obtainable sow the seed in a gentle bottom heat, and when the seedlings are large enough prick off singly into small pots, harden off gradually and plant out by the end of May or early in June. When seedlings are used it is advisable to plant in threes, by so doing unprofitable plants can be removed without making blanks in the line.

CAULIFLOWERS wintered in cold frames may be planted in their permanent quarters, as early as weather will permit, in a sheltered position. Some protection should be given if cold winds are prevalent.

SEA-KALE.—Plant sea-kale in lines 18 inches apart and 1 foot between the sets, and place some coal ashes over each crown. When cuttings taken from roots lifted during winter for forcing are used several shoots will break from the one root; these must be reduced to one, leaving, of course, the strongest.

Plant out in well prepared ground peas and broad beans sown in boxes last month. It is advisable to afford some protection against cold winds and late frosts until the plants get established; small branches or pea stakes will be suitable for the purpose.

ONIONS sown in January should be gradually hardened off and planted in deeply trenched, well-manured ground by the end of the month. The main crop of potatoes may now be put in with little risk of damage by late frost.

SEED SOWING.—French and runner beans sown in boxes about the middle of the month, if not unduly forced and planted out towards the end of May will be ready for use considerably in advance of the first sowings outside, which may be made about the end of April. Two sowings at least should be made of most of the Brassicas, and some means taken to protect the seeds from the ravages of rats, mice, birds, &c. Sprinkling the seeds with paraffin and red lead previous to sowing is a simple and effective preventive. Make an outside sowing of leeks for late supplies, also a good sowing of parsley to follow plants raised inside. Sow frequently small quantities of lettuce, spinach, turnips, radishes and mustard and cress; also good sowings of peas, broad beans and carrots. Seeds of gourds, pumpkins and vegetable marrows, also frame cucumbers, if sown now and potted on will make good plants, and will be ready for planting out in their respective positions by the end of May.

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Tulips.

By W. R. DYKES, Charterhouse, Godalming.

THERE seems to be only one real reason why the wild species of Tulip are so seldom cultivated in our gardens, and this is that many of them make little or no increase by offsets from the bulbs. From specimens dug up in Central Asia

too often the disappointment of seeing the promising seed-vessels rot and wither away under the influence of a fungoid disease, the attack of which they would probably be able to resist with the help of more sunshine and a drier



TULIPA DASYSTEMON. A pretty Dwarf Species from Turkestan with yellow flowers tipped with white.

as many as eight or ten old annual skins can be removed, showing that the bulbs have grown in one spot for that period or longer without ever making a single offset. Propagation must evidently take place by means of seeds, and yet this method of increase is sadly neglected in our gardens. There is perhaps some excuse for us in the damp north-west of Europe, for, if we try to obtain seeds of our Tulips, we have only

atmosphere. Moreover, even when sound seeds are obtained, they must be sown in early autumn if they are to germinate freely. When the seeds are sown in September or October, the young plants come up thickly like small onions in early spring, but when sowing is delayed until the new year the seeds never germinate till twelve months later, and usually do not germinate at all. It would doubtless be difficult for

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botanic gardens and seedsmen to arrange their seeds and print their lists in early autumn, but nevertheless delay till after Christmas very greatly diminishes the value of the seeds which they eventually offer.

Those who wish to have large numbers of the Tulip species must be prepared then to raise them from seeds, and, if the process is somewhat lengthy, the results give ample compensation.

Tulips are seldom found in rock gardens, and yet there are numerous dwarf species which succeed there admirably, and which, moreover, in the well-drained, warm positions that every good rock garden should afford, are more likely to live on from year to year than in the damper, colder soil of the average border.

The first to flower is usually some form of *Tulipa biflora*, which may open as early as the end of February, and the small creamy white star-shaped flowers with their yellow centres are very welcome at that time. Of this species a later and finer form comes from Afghanistan, and a good bulb of this often produces a stem which branches out into as many as five or six heads.

Other small species, which will flower in March, may be obtained under the names of *pulchella*, *Lownei* and *polychroma*, though whether their claims to these names are justified is still a matter of some uncertainty. A little later comes *T. dasystemon*, which is allied to *T. biflora*, and towards the end of April or early in May we get *T. Batalini*, of a delightful shade of pale primrose yellow, and *T. linifolia*, with flowers of the most dazzling scarlet. Both these species fortunately increase by offsets, and, moreover, owing to the fact that they flower late in the season, seeds are not so difficult to obtain. There is therefore no reason why they should be as rare as they have apparently become.

The well-known *T. clusiana*, with its red-backed outer segments and deep violet base, is not unsuitable for cultivation in the rock garden, where a place should also be found for the pink Cretan *T. saxatilis*, which will flower more readily in a confined stony root-run than in the open border.

T. sylvestris, together with as many of its numerous local forms as can be obtained, should be grown for its delightful scent, and the complaint that this Tulip is a shy flowerer will not be heard if the bulbs are lifted annually and replanted late in autumn. *T. primulina* from Algeria is particularly worth growing for its delightful scent.

No one who has seen *T. Kaufmanniana* in full flower in March is likely to remain long without

it, and, though the typical flower is white with a yellow centre, yellow and even scarlet forms are not unknown. With this Tulip there also grows wild in Turkestan the magnificent *T. Greigi*, easily recognised by its brown-mottled leaves, a feature which is rare among Tulips, though it is also found in one relative of *T. Greigi*—namely, *T. micheliana*. *T. Greigi* seldom produces an offset, but *T. Kaufmanniana* has the obliging habit of sending down droppers to any depth below the surface, so that, when you have apparently lifted all your bulbs and replanted them elsewhere, you will be surprised to see *T. Kaufmanniana* still in the old position in the following year.

T. Fosteriana is another magnificent scarlet Tulip from Central Asia, and it is usually in flower in April with *T. Eichleri* from near Bakue and *T. ingens* from Bokhara. All are very desirable, but they must be raised from seeds if large numbers are to be maintained. A little later, in early May, comes *T. tubergeniana* from Turkestan with huge scarlet flowers. Still later in May, or even in June, comes the scarlet Armenian *T. Sprengeri*, one of the few Tulips of which self-sown seedlings sometimes appear in our gardens.

No allusion has yet been made to the so-called neo-tulips of Savoy and Northern Italy, such as *Marjoletti*, *mauriana*, *strangulata*, &c. The mystery of their origin and the validity of their claims to specific rank have been much discussed, but the truth would seem to be that they are the descendants of seedling plants which were thrown out of gardens at the time of the Tulip mania because their flowers would not break into the flames and feathers which were then demanded by the florists.

Still more difficult is the question of the origin of our garden Tulips. When we remember that Tulips were cultivated by the Turks in Constantinople early in the sixteenth century, we cannot but realise the difficulty of the subject, and it is moreover not improbable that a species may have been used for hybridisation which has subsequently become extinct in the wild state either because of the demand for the bulbs or because the locality has been brought into cultivation. That there was a demand in Turkey for Tulip bulbs as long ago as 1700 is proved by the fact that a French Ambassador wrote from Constantinople in 1726 that the Grand Vizier had in his garden as many as 500,000 Tulips.

Even if we cannot all grow Tulips on so large a scale as this, we shall add greatly to the interest of our gardens in spring if we cultivate and raise from seed more of the Tulip species.

Mendelism.

FOURTH PAPER.

BY PROFESSOR JAMES WILSON, M.A.

LAST month two diagrams were not printed as they were intended to have been, and the illumination they were expected to give to two very difficult points was lost. Before proceeding farther it will be well to have those two diagrams properly displayed. The first was to illustrate how the materials for roundness and wrinkledness are distributed in the hybrids, and should have been as follows:—

IN THE POLLEN :	IN THE OVARIES :
..... R	R.....
..... w	w.....

The next was to illustrate the sixteen possible combinations produced by the hybrids of parents which differed in two pairs of characters, and should have been as follows:—

RR	Rw	wR	ww
YY	YY	YY	YY
RR	Rw	wR	ww
Yg	Yg	Yg	Yg
RR	Rw	wR	ww
gY	gY	gY	gY
RR	Rw	wR	ww
gg	gg	gg	gg

We may now sum up the chief results which can be gathered immediately from Mendel's experiments. They are:—

(a) The progeny of hybrids are of different kinds, and the number of kinds depends upon the number of characters in which their parents differed. If the parents differ in one pair of character, the hybrids have two kinds of progeny; if the parents differ in two pairs, the hybrids have four kinds; and so on: the number of kinds of progeny being doubled for every additional pair of characters in which the original parents differed.

(b) The numbers in each kind produced by the hybrids increase in mathematical order, according as the pairs in which the original parents differed increase, thus:—

For one pair	3 : 1
For two pairs	9 : 3 : 3 : 1
For three pairs	27 : 9 : 9 : 9 : 3 : 3 : 3 : 1
and so on.	

(c) In each kind produced by the hybrids a

certain proportion of individuals breeds true. In the smallest group every individual breeds true; in every group of 3, one individual breeds true; in every group of 9, one individual breeds true, and so on.

(d) The different characters borne by the hybrids' progeny—that is, of the kinds they produce—which have been the subject of observation may be represented generally as follows:—

When there are two kinds—

$$\begin{array}{c} X \quad x \\ 3 : 1 \end{array}$$

Where there are four kinds—

$$\begin{array}{cccc} X & X & x & x \\ Y & y & Y & y \\ 9 : 3 : 3 : 1 \end{array}$$

Where there are eight kinds—

$$\begin{array}{cccccccc} X & X & X & x & X & x & x & x \\ Y & Y & y & Y & y & Y & y & y \\ Z & z & Z & Z & z & z & Z & z \\ 27 : 9 : 9 : 9 : 3 : 3 : 3 : 1 \end{array}$$

and so on.

From these results the following simple deductions can be made:—

(1) *As to the number of new kinds or varieties produced.*—Since there are always only two original parents and both their types are found among the hybrids' progeny, the number of new kinds produced must be the total number of kinds produced by the hybrids minus two, thus:—

Total Number of kinds in the Hybrid's Progeny	Number of kinds in the Original Parents	New kinds
2	2	0
4	2	2
8	2	6
16	2	14
32	2	30

and so on. Thus, if a gardener wishes to produce a new variety, he must begin by mating parents which differ in more than one pair of characters; and, the more the characters in which the original parents differ, the more new kinds will he produce.

(2) *As to the parents to be mated.*—It is not necessary that one parent should carry all the dominants and the other all the recessives. If we look back to paragraph (d) at the set of progeny containing four groups we shall see that it does not matter whether parents carrying the characters XY be mated with those carrying xy or whether parents carrying Xy be mated with those carrying xY. In each case the same

the kind of hybrid will be produced and the progeny again will be the same whether the hybrid was produced in one way or the other.

(3) *As to the remaining characters in which the parents do not differ.*—We do not know whether Mendel's peas were absolutely alike in all other characters than those in which he observed them to differ. Probably they were not and he neglected the remainder as unessential to the main issue. This can be said, however, that, if the hybrids between two parents have two kinds or four kinds or eight kinds or any other possible number of kinds of progeny, then their parents differed in one, two, three or more pairs of characters, as the case may be, *but the remaining characters in each were the same.* This principle can be used for comparing plants which have not been mated. For instance, if plant A differs from B as regards X and x only, then their remaining characters may be written down:—

A = XYZPQR . . .
B = xYZPQR . . .

If B differs from C as regards Y and y, then their remaining characters may be written down:—

B = xYZPQR . . .
C = xyZPQR . . .

If C differs from D as regards Z and z, their remaining characters may be written down:—

C = xyZPQR . . .
D = xyzPQR . . .

(4) *As to where to look for information.*—Frequently it is possible to gain much information from the hybrids themselves. The hybrids show all the dominant characters, and the characters which disappear are their recessives. If there be any doubt as to which dominant and which recessive make a pair, the doubt can be settled by the next generation. For instance, in the two pair set of four groups—

X X x x
Y y Y y
9 : 3 : 3 : 1

Each of the two groups of three—the two middle groups—shows one dominant and the recessive of the other.

If we look back to section (d) we see that each group of nine in the three-pair set of eight groups carries two dominants and the recessive of the third, while each group of three carries two recessives and the dominant of the third.

(5) If the progeny of hybrids have been separated into 4, 8, 16 or more groups, any pair of characters may be neglected without the distribution of the remaining characters being interfered with. For instance, when Mendel

mated peas differing in three pairs of characters he found the hybrids' progeny to be as follows:—

Round, yellow albumen, coloured seed-coat	269	i.e.	27
Round, yellow „ white „	98		9
Round, green „ coloured „	86		9
Wrinkled, yellow „ coloured „	88		9
Round, green „ white „	27		3
Wrinkled, yellow „ white „	34		3
Wrinkled, green „ coloured „	30		3
Wrinkled, green „ white „	7		1

If the last pair of characters be neglected, the three-pair set of eight groups becomes a two-pair set of four groups, thus:—

Round, yellow	367	i.e.	9
Round, green	113		3
Wrinkled, yellow	122		3
Wrinkled, green	37		1

If either of these pairs be neglected, then the two-pair set of four groups becomes a one-pair set of two groups, thus:—

Round	480	i.e.	3
Wrinkled	159		1

(6) If the original parents differ in any number of pairs of characters, and the members of each pair are related to each other by ordinary dominance and recessiveness, then, if sufficient second generation progeny are bred, the usual number of types *must* be produced, but, if one or more types be inseparable by the eye, the number of observable groups will be one less than the normal for every type that is inseparable from another and the numbers in one group will be the sum of the numbers in the two inseparable types together. If, for instance, the first two of four types be inseparable there will be three groups in the ratio 12 : 3 : 1, thus:—

X X x x
Y y Y y
9 : 3 : 3 : 1
12 : 3 : 1

If the last two types be inseparable, there will be four groups in the ratio 9 : 4, thus:—

X X x x
Y y Y y
9 : 3 : 3 : 1
9 : 3 : 4

If the last three types be inseparable, there will be two groups in the ratio 9 : 7, thus:—

X X x x
Y y Y y
9 : 3 : 3 : 1
9 : 7

There are others, to which we may return again. Next month we shall consider the application of the theory to some of the irregular problems which have arisen.

Hardy Aquatics.

By J. W. BESANT.

UNDER this heading are included all plants which are adapted for cultivation about the margins of ponds and lakes—generally actually in the water, though some few may flourish in the wet mud without being surrounded by the water. For the purpose of this article *Nymphæas* are left out, since they formed the subject of an illustrated article in a former issue.

For water gardening *Nymphæas* are of course pre-eminent, but in other plants, if less brilliant in flower, we get greater diversity in form, and in all good gardening form must receive equal consideration with colour.

The pond or stream which has its banks or margins furnished with all the delightful bog plants known to gardeners is infinitely more beautiful and satisfying than another where the edges are as bare as a teacup.

Not a few native plants may be encouraged to grow there—and they will lend additional beauty to the aquatics—*Calthas*, *Orchises*, *Sedges* and *Trolii* all thrive and look happy close to the water. Even among those which naturally grow right in the water we have a number of native species; some in fact may become a nuisance in very small ponds, but, as a rule, they are easily kept in check by simply pulling them out with a rake or drag.

As alluded to earlier, diversity in form is one of the chief merits of hardy aquatics apart from Water Lilies; some grow quite erect, others have leaves floating on the surface, and yet others

have the finely divided leaves submerged, pushing the flowers to the surface in due season. Again, some are stationary or at least spread only by rooting in the mud, while a few others seem to find sustenance enough in the water and float freely about, only seeking the friendly assistance of the mud on the approach of winter.

It is usually best, when introducing these aquatics to a pond for the first time, to have them established or at least planted in loosely-woven baskets. These with the plants may be

dropped into the water just where it is desired to form a colony. Thus as the roots grow through the basket they will seek the mud at the bottom and quickly make themselves at home. With those which float about in the water it is sufficient to throw them in when they will take care of themselves. It is clear, however, that these



THE CAPE POND WEED (*APONOGETON DISTACHYON*). A hawthorn-scented aquatic, growing in a pool at Mount Usher, Co. Wicklow.

latter must only be introduced to comparatively still water or of course they will speedily vanish.

Hardy aquatics as understood here may be divided into two sets—one composed of those with floating or submerged leaves and the other of those which grow erect sometimes several feet above the surface of the water. It is well in arranging the colonies, as far as possible to alternate the different forms, leaving the unattached kinds to arrange themselves.

AQUATICS WITH FLOATING LEAVES.—*Aponogeton distachyon*, the Winter Hawthorn, produces long oval leaves and spikes of white flower-like bracts. The real flowers are inconspicuous but this is compensated for by the bracts. This plant is very hardy, and succeeds in the east of Scotland; it comes from the Cape of Good Hope.

Brasenia pellata, the North American Water Shield, has roundish floating leaves and dull coloured flowers. It is useful for variety.

Elisma natans, a rare native plant, has elliptical, blunt leaves and white flowers, which are produced singly on slender stalks.

Azolla pinnata, a tiny aquatic with small closely set leaves and roots which hang free in the water, is worth trying to establish, as the leaves turn a warm reddish-brown in autumn, a large colony creating quite a unique effect on the surface of the pond. It thrives well in the south of Ireland, notably in Mr. Beamish's garden.

Hottonia palustris, the Water Violet, is another comparatively rare native plant and one of much beauty. The finely divided leaves are wholly submerged, and from the crown the spike of light blue or blue and white flowers is produced above the water. This plant sometimes moves about freely in the water and at other times seems to root in the mud. A large colony is very pretty when in flower.

Hydrocharis morsus-ranæ, the Frogbit, is an interesting and pretty little floating aquatic found here and there in ponds and ditches. It is well worth growing in ponds and pools with other choice things. The leaves are rather heart-shaped and stalked, while the flowers, which are fairly large in comparison to the size of the whole plant, are white or yellowish white. It sinks to the bottom in winter, reappearing again in spring.

Limnanthemum peltatum also has floating leaves, and soon forms a wide colony, rooting freely in the mud. The flowers, produced freely in summer and onwards into autumn, are yellow.

Stratiotes aloides, the Water Soldier, is a very remarkable aquatic meriting inclusion wherever aquatics are grown. It increases very rapidly, and for this reason some may hesitate to introduce it to small ponds, yet it is easily reduced and need hardly be allowed to injure less vigorous plants. The tufts of leaves, arranged somewhat like an American Aloe, are wholly submerged, the whole plant—roots and all—floating freely in the water. During summer the flowers, which are not remarkable, float on the surface.

Kerner (Nat. Hist. of Plants) gives a good account of the Water Soldier. There he describes how during winter the plant rests at the bottom, rising towards the surface in spring. After producing new leaves and flowers it again seeks the bottom to mature the seeds and form buds which ultimately produce young plants. In early autumn it once more seeks the

surface, and young plants from the buds just mentioned are produced. On the approach of winter the whole family migrates to the mud.

ERECT GROWING AQUATICS.—These include plants which produce stems and leaves to a considerable height above the surface of the water; the height varying, however, according to the genus. Here again we meet with some native plants, all too seldom seen in artificial waters, and whose presence would often dispel that stiff formal appearance which so often mars the beauty of a water garden.

Butomus umbellatus, often called the flowering Rush, is one of our natives well worth cultivating. The long triangular leaves rise well out of the water, but are exceeded by the smooth flower stem, which is surmounted by a handsome cluster of pink flowers. This is a deep water plant and beautiful when flowering in a large group or colony.

Orontium aquaticum, the Golden Club of North America, is interesting and succeeds in water a foot or so deep. The interest lies chiefly in the long yellow and white spadix, bearing the minute flowers, which rises above the water as also do the leaves.

Pontederia cordata is a handsome blue flowered plant, a colour not common in hardy aquatics. The tufts of somewhat arrow-shaped leaves are striking and are accompanied in summer by spikes of beautiful blue flowers. A good plant for a sunny shallow pool.

The *Sagittarias* are extremely pretty and interesting, producing arrow-shaped leaves and spikes of white flowers well above the water.

S. sagittifolia and *S. variabilis* fl. pl. are the two commonest species.

Scirpus lacustris, the Bulrush, is useful in giving diversity of form. The dark green flower stems grow five or six feet above the water, producing the inconspicuous flowers at their extremities.

The Typhas or Reed Maces are conspicuous ornaments of our water gardens, and always a source of interest. From among the long strap-shaped leaves rise the tall flower stems each surmounted by a dense dark brown spike of flowers. *T. latifolia*, *T. angustifolia*, *T. minima* and *T. Shuttleworthii* are the species most commonly cultivated.

Zizania latifolia, the broad-leaved perennial rice plant, is a handsome aquatic too seldom met with in water gardens. The long flat leaves are handsome, rising from the water in summer, while the feathery flower panicles lend additional beauty and interest. May and June are good months to plants aquatics.

Aurículas.

By T. W. BRISCOE.

THE Auricula has long been a favourite in the British Isles, and it is still one of the choicest of what may be termed the old fashioned florist flowers. The most popular section is the Alpine (*Primula pubescens*), and then we have the garden Auricula (*Primula Auricula*), which is sub-divided into four groups—viz., selfs, white-edge, and grey-edge and green-edge. All are quite hardy, but to see the rich and varied colours of their flowers at their best, and to preserve the white meal or farina on the leaves of the edged varieties, a cold frame is necessary. This should face south during the winter, but in summer it may be placed on the north side of a wall or building.

REPOTTING.—In the month of April the plants are in full bloom, and as they pass the flowering stage the annual repotting is done. This operation should be carried out in May, and large receptacles must not be employed. For full grown examples, pots from four to four and a half inches in diameter will be needed, and so on in proportion as the plants become smaller. Ample drainage must be provided, and to secure a free outlet for water a thin layer of loam fibre may be laid over the potsherds. The soil is made up of the best fibrous loam three parts, and one part leaf mould with a sprinkling of silver sand or crushed oyster shells added. Most of the old soil should be shaken from the roots, and all the woolly aphid must be destroyed with methylated spirit or tobacco powder. When the repotting is finished arrange the plants near the glass in a cold frame, and only give sufficient water to prevent them from flagging. With ordinary care they will soon be established, when the lights can be removed both day and night, providing there are no heavy rains. At the end of October the water supply should be slightly decreased, and through the winter months very little moisture is needed, but air must be admitted whenever possible, and all dead leaves should be removed directly they will part readily from the stem. As spring approaches root action will be more vigorous, and the plants will require more water at the root than at any other period of the year. When the spikes are seen the plants must not on any account be allowed to get dry at the root, and when the first flower opens a little shade will be necessary during the middle of the day.

OFFSETS.—These are taken in February and August, while any that are large enough for removal can be taken when repotting in May. Those with roots are placed singly in three-inch pots, and a lighter compost may be used, but any without roots are arranged around the sides of pots until rooted. All the offsets should be potted on as they fill their receptacles with roots, when they will soon attain flowering size.

SEED SOWING.—Auricula seed may be sown at any time, but it is best to sow directly it is ripe. Germination is slow, and seedlings may appear at intervals for twelve months or even longer. It should be sown thinly in well drained pans of light soil, and placed in a frame where the sun will not shine. When they have made two or three tiny leaves they can either be potted singly or pricked out in pans one or two inches apart. As they increase in size more root room must be

afforded, till the flowering stage is reached. Seedlings are more vigorous than many named varieties, and the grower must understand that a large percentage will be greatly inferior to those already in existence, but there is always that element of chance so dear to the heart of a Britisher, of something "out of the ordinary" turning up.

DISEASES.—Damp is the greatest enemy that the Auricula has to contend with during the cold wet winter months. Everything possible must be done to alleviate this, as prevention is impossible. There should be no drip in the frames, no water allowed to accumulate in the heart of the plant through careless watering, and plenty of air admitted whenever the weather is dry.

The taproot occasionally begins to rot, and when this is evident by the plant looking sickly it must be overhauled, the decayed portion cut away, and then dried over with some powdered charcoal. The taproot ought always to be examined at the time of repotting.

INSECT PESTS.—These consist of greenfly and the woolly aphid. The former is easily destroyed by fumigations with "XL All," and the same remarks apply to those of the latter which happen to be above the surface. Those under the soil are dealt with when repotting as stated above.

IMPORTANT FACTORS IN AURICULA CULTURE.—Cleanliness must be insisted upon at all times: the plants must be kept cool and never coddled in any way: careful watering, for Auriculas never thrive in a sodden condition, liquid manure is not required, and the soil should always be in a sweet condition. Treat them as plants, and the grower will be rewarded with fine flowering examples.

Useful Greenhouse Plants.

In these days there is no lack of material to keep the greenhouses gay throughout the year, but it is always advisable to have as much variety as possible, and to grow a few different plants each year.

The *Boronias* constitute an interesting group of hard-wooded plants which hail from Australia, and the most popular species is the sweet-scented *B. megastigma*. It forms a dense twiggy little shrub, and produces numerous bell-shaped flowers which are yellowish within and chocolate colour on the outside. Another desirable plant is *B. heterophylla*, while *B. elatior*, a later flowering kind, should also be included. They will thrive in a peaty soil, and must be firmly potted.

Exacum macranthum.—This is a beautiful plant with rich gentian-blue flowers, the golden anthers standing out in bold relief. It can be raised from seed, and if potted on when required in the usual compost no difficulty will be experienced in regard to its culture. Nice flowering plants can be had in 48s, and they are rather dwarf in stature.

The following can also be raised from seed:—*Torenia Fournieri*, a pretty greenhouse annual, with violet blue and white flowers, the various forms of *Impatiens*, such as *Holstii*, *Sultani* and *Holstii* hybrids; while the comparatively new *Dimorphotheca aurantiaca* hybrids make excellent pot plants.

Saxifraga Cotyledon and some of its Varieties.

By MURRAY HORNIBROOK, Knapton, Abbeyleix.

THERE are few who are not familiar with *S. Cotyledon*—the Pyramid Saxifrage of commerce—it is to be found in most rock gardens, and can usually be seen on sale in pots in Covent Garden, but some of its forms and varieties are not so well known, and it is of them that I would write. Mr Farrer finds that the type, and especially the variety *Icelandica*, do not care for lime. I have not found that they object to the limestone which one gets in this part of Ireland, but they seem to dislike most the heavy winter rain-fall, and are inclined to rot away unless fully exposed—south or south-east. This is somewhat curious, as all the other varieties of the Euaizoon section grow anywhere here in sun or shade, and seem impervious to winter damp.

S. "Icelandica" is a notable plant with very long, dull, leathery, strap-shaped leaves. It is a shy flowerer, but last summer it sent up an enormous plume of almost pure white flowers, about 2 feet high, which was well worth waiting for. The accompanying photograph was taken just as the flowers opened



Photo by]

[Murray Hornibrook

SAXIFRAGA COTYLEDON ICELANDICA AT KNAPTON,

ABBEYLEIX.

white; flower stem short and red colour. Very attractive.

Var. "atropurpurea."—This was a seedling raised (from an original *S. Cotyledon*) which flowered last year; foliage the same as the type, but the flowers not spotted, but blotched with crimson to such an extent that the whole of each petal, with the exception of a thin white edging, was crimson; most attractive and distinct. Unfortunately a wandering dog smashed the flower stem before the seed ripened, and the rosette died, but it made three offsets before it expired which are alive and doing well, so I trust they will have the same flowers as their parents.

I grow several other forms which are either too near the type to be distinct or I suspect to be possessed of foreign blood. If any of the readers of IRISH GARDENING have any other varieties I should be interested to hear of them.

S. Cotyledon in Nature.

SOME time ago when in Switzerland we walked along the Handegg road which leads to the Grimsel Pass, from which a glorious view opens out to the Rhone Glacier.

This Handegg road during part of the way winds between limestone cliffs, on the sides of which *Saxifraga Cotyledon* abounds, the road having been cut out of the rock. Above our

head the cliffs rise steeply for hundreds of feet, and below the road the rock falls away precipitously to a roaring torrent beneath.

To see this big Rockfoil growing naturally is a beautiful sight, its large pyramidal masses of white, crimson-spotted flowers waving in the slightest breeze elicits the admiration of all passers by, and not a single flower spike was within easy reach, for they are gathered as soon as the flowers open. In small crevices large single rosettes sent roots deep into the rock; in larger cracks and shelves, where humus had accumulated large tufts had formed. These were sending up a dozen or so plume-like flower stems, each 18 inches or more in length. Eventually we found a place where, by scrambling over the parapet guarding the road, my companion, Mr Malby, was able to

Var. nepalensis.—The plant I have under this name seems very near the type, but flowers more densely spotted with red and the rosettes do not die after flowering.

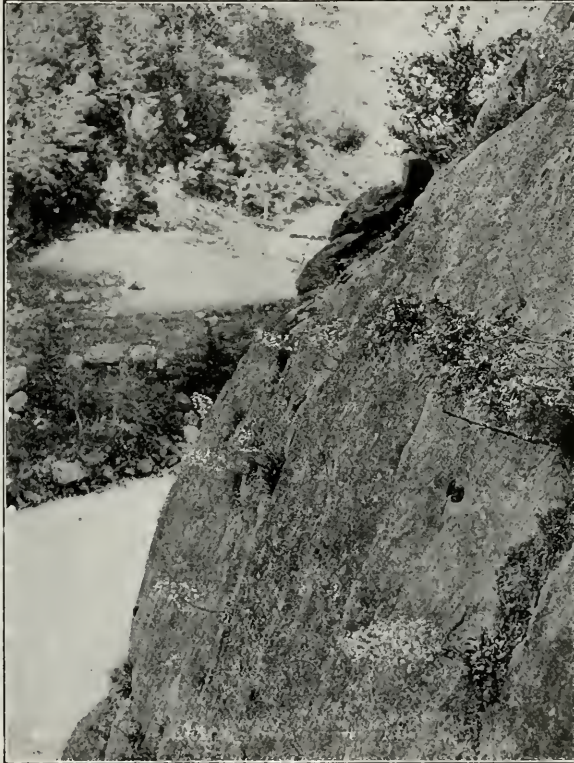
Var. lingulata.—This is the most satisfactory variety I possess, the foliage of the rosettes is narrower than the type and much longer—in full grown plants 6 inches and more. It does not seem to mind wet or aspect, and is generous with its flower spikes, which sometimes attain a height of 2 feet 6 inches to nearly 3 feet.

Var. "Hermitage."—A distinct variety, which I have only just got, with foliage resembling a pineapple; it has not yet flowered.

Var. from the Pyrenees.—This is a true *S. Cotyledon* in habit (centre rosette dies after flowering), with very distinct pale green—almost yellow—foliage; leaves very short and stumpy, and round at the tips; flowers pure

secure a photo of some rosettes, from which our illustration is taken. In this exposed position the lime encrustation of the leaves is vividly white. If we pull off a leaf of *Saxifraga* *Cotyledon* and examine it we find a depression or small pit encrusted with lime in each tooth at the margin of the leaf. The base of the pit is lined with thin-walled cells, and a vein starts beneath. In wet weather the water excreted from the veins contains carbonate of lime, which is left behind by evaporation, and a white scale of lime forms, which gives the name "*Encrusted Saxifraga*" to this section. In dry weather the lime scale is tightly pressed over the pit, and acts as a stopper; but in damp weather the scale is loosened and admits water beneath it. In times of drought many of these *Saxifragas* are exposed to desiccation, but they have a very thick skin, excepting for the lining of the pits where covered by the lime scales. When rain or dew falls on a leaf, the water soaks under the crust of lime and fills the depressions and is taken up the absorptive cells, and in dry weather the stopper again fits the pit closely to prevent evaporation.

A somewhat similar arrangement is found in the *Acantholimon* and some *Statice*s, except that the pits are not confined to the margin, but are dotted over the surface of the leaves. Some of these plants inhabit steppes and desert places where a small amount of rain falls for months at a time. C. F. BALL.



SAXIFRAGA COTYLEDON.
Growing on a cliff in Switzerland

Regal Pelargoniums.

BY JOHN CLEARY.

For greenhouse embellishment the Regal Pelargoniums are absolutely indispensable, and ere this issue of IRISH GARDENING is obtainable they will be showing their beauty, provided they receive cool greenhouse treatment. A nice batch can be had for next spring by the following treatment:—As they go out of bloom harden them off by gradually withholding water; then take them out of doors and place the pots lying on their sides, and after about a fortnight this way, the young growths will be in nice form for taking cuttings. First prepare a good compost of fibrous loam with one-fourth leaf-mould and fine sand,

sift all and mix well together, putting the compost in boxes 3 or 4 inches in depth, with good drainage; give a good soaking of water, then take cuttings, which can be prepared in two ways—viz., by pulling off with the heel attached, or by cutting off slanting with a sharp knife; in either case leave the cuttings about 4 inches long. Insert them about 1½ inches deep, placing them in a frame till rooted, which will take place in about six weeks when they should be placed singly in 3 or 4-inch pots, which should be well washed

beforehand. If desired, they may remain in those pots till January, when they should have their final shift into 5½ or 6-inch pots, always remembering that clean pots and sufficient drainage are of primary importance. Use a compost of good fibrous loam, with one part each of leaf-mould and sand to five of loam, sifting only the leaf-mould in order to take out the bits of sticks; add an 8-inch pot full of bonemeal and a like quantity of soot to each barrowload of compost. The plants require to be pinched back, as they make very rampant growth when they get any heat. Pinch when six inches high in order to obtain good, bushy plants, and again according as they require it. As they do very well in a moist atmosphere, they should be frequently syringed, as this not alone encourages growth, but also keeps them clean and healthy. As they are gross feeders when growing, they require a

copious supply of water. Weak liquid manure twice a week and a good fertiliser once a week would be very beneficial, and help to give large spikes of bloom and fine healthy foliage.

They are greatly addicted to greenfly, so the house should be fumigated often to prevent them from being destroyed.

It might be advantageous to amateurs to know a good dozen, so I will here give the names of the best dozen which I grow:—Exmouth Rival, carmine, scarlet, or salmon; Albert Victor, rosy red and white; Duke of Connaught, cherry carmine; Lady Decies, flesh flamed with red; Rosy Gem, rose suffused scarlet; Magnificent, soft rose and chocolate; Pearl, pure white; William Hauff, salmon rose; Atalanta, mauve and white; Mrs. Lion, pure white; Duchess of Albany, purple violet; Lady Coleridge, delicate rose.

Clematis montana and Varieties.

THIS Clematis is well known as one of the most beautiful of all May-flowering climbers. Useful for covering rough fences, pergolas, or arbours; often it may be seen trained to a wall covered by a sheet of white blossoms, each about 2 inches across.

Our illustration shows the large-flowered form covering an arch in Mr. Smyth's garden at Dalkey, where it is wondrously beautiful in May. On part of the arch, so closely are the flowers packed together that they completely hide the foliage. This grandiflora variety should always be grown in preference to the type, for it is equally free-growing, much finer, and more decorative.

C. montana rubens is rapidly becoming a favourite on account of the rose-pink flowers which distinguish it from the type; even when not in flower it may be told by the dark-coloured foliage. Seedlings which have been raised seem to be inferior and too pale in colour.

C. montana Wilsonii is a new variety which will be welcome because it produces its flowers in August; otherwise it is very similar to the type for garden purposes. It was sent out by Veitch about 1908 to 1909 as *Clematis repens*.

These Clematis thrive in any ordinary good soil, but prefer that of a calcareous nature. So where lime is absent in soil, it pays to give a sprinkling of slaked lime.

Pruning is not necessary where this Clematis has ample space to spread, but in a limited space where plants have to be kept in bounds, pruning should take place immediately after flowering, for *C. montana* and its varieties flower on the young wood, and if pruned in winter the flower buds will only be cut away in pruning.

The Rock Garden in May.

FROM March onwards through the spring and early summer months there is much of beauty and interest in the rock garden, and perhaps in May we get the greatest show of the year. Then many of the earlier things have not yet lost their pristine freshness, and the early summer Alpines are approaching the zenith of their beauty. Of course locality has much to do with the time of

flowering, and fortunately the same plants are not always flowering simultaneously in all parts of the country.

As evidence of what can be seen in the neighbourhood of Dublin, it is only necessary to glance at the accompanying illustration, taken last May at Mount Henry, Dalkey. To the right may be discerned a glorious mound of *Iberis gibraltarica*, a delightful, but sometimes elusive, plant, revelling in a sunny position, but disliking damp in winter. Near by, too, are cushions of *Aubrietias*, Mossy Saxifrages, *Cineraria lobata*, with bright yellow flowers, Alpine *Auriculas*, *Erigeron mucronatus*, a most accommodating plant for the sides of paths, steps, and on walls, bearing innumerable winsome daisy-like flowers all summer; also the prostrate blue-flowered *Veronica Teucrium dubia*, and many others. Then, too, the *Achilleas* make mounds of white, and several *Anthemises* are pictures of beauty. Rock Roses and Rock Cistus, too, in endless variety, give warm gleams of colour here and there; while *Wahlenbergias*, *Campanulas*, *Saponarias*, and *Dianthus* are a never-failing source of pleasure. In the lower reaches of the rock-work, in shady bays and moist recesses, *Cypripediums* and *Orchises*, *Trolliuses* and *Primulas* add delight to the merry month of May.

B.



CLEMATIS MONTANA GRANDIFLORA AT MOUNT HENRY, DALKEY.

The Indian Azaleas.

THESE charming plants have been known since the seventeenth century, but it was not till fifty years or so ago that they became a desideratum in greenhouse decoration. They produce a magnificent floral display from December to May, and can be obtained in all shades of red, pink, red and white, and various combinations of colours, while the pure white forms are always admired. There are both single and double varieties, and they are grown as standards, half-standards, pyramids, &c., but the dwarfier plants are more useful for rooms and ordinary greenhouses. A great number of plants are imported annually, and with a little care and attention they may be grown on to produce a wealth of bloom for many years. As they pass the flowering stage, all the dead blooms and stems must be removed. The plants are then placed in a light structure where the temperature averages about 60° Fahr., and syringed twice each day whenever the weather warrants the use of the syringe. Careful watering will be necessary, and on no account must they get dry at the root.

Rock Gardening for Amateurs.*

HAVING edited many gardening publications, Mr. H. H. Thomas now presents the gardening public with a new book entitled "Rock Gardening for Amateurs." It is distinctly a book for amateurs, and in this respect it certainly answers the purpose, but it will hardly satisfy the connoisseur of Alpine plants and rock gardening.

The book is divided into four distinct parts, the first dealing with "making, planting, and tending," where the directions are clear and distinct, but the author very rightly adds that

known plants, and gives a short descriptive note of some of the most useful species of the various genera. The last part of the book is a descriptive list of the best kinds to grow, divided into sections—those that like or dislike lime, those preferring peat, those that may prove tender in certain localities, plants for pools, plants with grey foliage, prostrate plants, as well as lists of plants in distinct colours, those suitable for moraine, and those that are evergreen. There is an excellent index to the book, by which means the information sought can be readily found, and the coloured and black and white plates are remarkably good.

R. M. P.



Photo by]

THE ROCK GARDEN IN MAY AT MOUNT HENRY, DALKEY.

[G. E. Low.

"books can only put the reader in the right way," which is perfectly true. Gardeners look to books for this very reason, but no amount of book learning will ever make a gardener; the type can be considerably improved, but a start must be made with the genuine article. In the second part—"The charm of variety"—the moraine is dealt with, and we get in a nutshell the position, how it is made, compost, when to plant, and the favourite moraine plants. To the latter list a good many more might have been added. The chapter on rock borders is encouraging, for there is plenty of room for this class of gardening. In dealing with the wall garden the information is excellent as far as it goes, but the author might have given a good deal more advice on the question of seed sowing and planting in the wall.

The third part, entitled "Indispensable Rock Garden Flowers," deals with the various well-

Eremurus robustus.

THIS stately Liliaceous plant is far too seldom seen in gardens, but wherever grown it forms, when in full bloom in June, a most striking and conspicuous object. A native of Turkestan, it is endowed with long and fleshy roots in shape like a huge starfish, and therefore should be planted in deep, rich soil. The leaves, which push through the ground in early March, are of a shining green, sword shaped, being, when fully grown, some 3 feet long and 3 inches broad. The stout flower stem reaches a height of from 6-10 feet, of which the upper 3 or 4 feet is covered with tapering spikes of rosy pink flowers, each about 2 inches across. *Eremurus robustus* is best planted in groups, and such a group when in flower is a magnificent spectacle, not readily forgotten.

Seed is plentifully ripened, but as it takes a seedling about five years to attain flowering size, division of the rootstocks is frequently practised in preference.

* "Rock Gardening for Amateurs." By H. H. Thomas. Price 6s. Published by Messrs. Cassell & Co., London.

R. H. S. of Ireland Spring Show.

THIS Show was held at the Royal Dublin Society's premises, Ballsbridge, Dublin, on the 15th and 16th of last month, and was favoured by bright and sunny weather.

The Show was a great success, and from the gallery of the Main Hall a view was obtained of the long rows of tables artistically decked with all kinds of beautiful spring flowers. Of course the Daffodils were the leading feature, but on entering the hall the eye was riveted to a resplendent table of crimson and various coloured *Amaryllis* shown by Alderman Bewley, to which a gold medal was awarded. Very fine pots of *Mignonette* attracted attention by its sweet scent, while large pots of *Dentzia crenata* were particularly good. The *Schizanthus* or Butterfly flowers were well grown specimens, and the class attracted keen competition, while the *Azaleas* and *Calceolarias* gave a gorgeous splash of colour.

DAFFODIL NOTES.

Taking the Daffodil exhibits as a whole they were well up to the usual standard at the Spring Show, and, as regards condition, were far better than last year, when, owing to the early season, practically all the blooms exhibited were past their best.

In the amateur section Mr. J. L. Richardson's (Waterford) flowers in all the classes he entered for were excellent. They were large, well coloured, and of good substance, carefully grouped and well staged. In the class for Trumpets his first prize lot with *Weardale Perfection*, *King Alfred* and *Glory of Noardwyk* would have been hard to beat. In this class Mr. C. W. Parr got a good second with a very nice group, His Honor Judge Bird (Dundrum, Co. Dublin) taking the third.

In the Ardilaun Cup class, Major S. C. Hickman well deserved the first place, with Mrs. Hely Hutchinson second and Captain O'Callaghan third.

The doubles were good, but there was nothing new shown. Polyanthus classes were poor, nearly all the flowers being very much past their best. One of the best lots entered was disqualified, presumably because there were more than the regulation number of trusses put in one vase. It is a great pity, but it is also pure carelessness on the part of the exhibitor, that prizes are so often lost through inattention to the rules.

There were two trade exhibits, one from Messrs. Baylor Hartland and one from Lissadell, Co. Sligo. The former had a nice lot of stuff, well shown. "*Czarina*," a huge *Leedsii* with a beautifully frilled cup, was again striking. "*R. H. Beamish*," a pale coloured trumpet with well-shaped, substantial perianth is a good thing. One of the seedlings named "*Faction*" seems promising. But, on the whole, the seedlings at this show were disappointing, and there is plenty of room for improvement in the Poeticus section and in the doubles.

The Lissadell stand was not nearly as good as last year, but the show in London on the same days may have accounted for this, as probably their best stuff went over to it. They had some seedlings, a very nice *Triandrus* hybrid and a

white trumpet, but we still want a white *King Alfred*, and let us hope when it does come it will have been raised in Ireland. M. C.

ROSES.

In the Rose classes the Challenge Cup (£10) for Six Pot Roses was again won by Mr. H. S. Guinness with well-balanced plants in perfect condition of bloom and foliage, clean, healthy, vigorous, the blooms young and fresh, with several more to come along: the second prize going to Mr. F. A. Millar for taller plants, some of which were not so suitable for this class and slightly past their best: Mr. Henry Dudgeon took third prize. In the classes for cut blooms, Alderman Bewley captured the first prize in each of the three classes, with blooms full of substance, young and fresh, nearly all of which maintained their form well into the second day of the Show, a two-day show being a severe test of the quality of cut Roses. Mr. Edmund D'Olier was second in each of these classes with some very excellent blooms, but many of them were of varieties that will not stand this test, and some of them were flagging even before the Show opened. Mr. S. Soden was third in the class for twenty-four blooms, Mr. Henry Dudgeon third in the class for twelve Teas, and Mrs. James Talbot Power third for twelve blooms of six varieties, in this box were some very beautiful Roses, but the exhibit was spoiled by two blooms which were completely over. Mr. Edward Lee was reserved for a very creditable selection. On the whole the Roses were not quite up to the standard of the previous year, when the competition between the first and second winners was much more keen, the blooms being of a distinctly better quality in 1913 and in such perfect condition that the decisions could only be arrived at by taking into consideration effective staging and greater variety of colouration.

HARDY ALPINES IN PANS.

The competition in these was unfortunately limited to two entries only, Mrs. Greer, of Curragh Grange, again winning the premier award with large pans of choice Alpines. The best of a very good lot were *Primula Juliae*: *P. rosea*, very fine; *Morisia hypogaea*, well flowered; *Helichrysum bellidioides*; and *Primula Forrestii*. Second honours fell to L. Vernon with smaller pans, which, though bright, were inferior in quality. It is a pity there is not more competition in this class, as it is one of great possibilities. There is room also for much improvement in the quality of the Alpines exhibited. Mossy Saxifrages and Aubrietias, though showy, are hardly worth the trouble when so many species are available, as, for instance, in the *Primulas*. There should be little difficulty in producing pans of *Primula ciliata superba*, *P. ciliata purpurea*, *P. hirsuta*, *P. pubescens alba*, *P. longiflora*, so well shown by Tully Nurseries. *Wahlenbergias*, too, would be available, as well as several *Ranunculuses*, *Draba dedeana*, *Androsaces*, *Saxifraga cochlearis*, and several of the *Kabschia* section. In fact there are plenty of good things, easy to propagate and easy to acquire at little expense. In Class 56, for a collection of 24 vases of hardy cut flowers, there

were four entries, all of a high order of merit. First honours fell to Mrs. Talbot Power with a very fine lot, in which flowering shrubs, of course, predominated. Well flowered masses of *Berberis Darwinii*, *Forsythia intermedia*, *Cytisus albus* and *præcox*, tree *Pæonias*, *Cydonia*, and other choice shrubs were well shown, and the whole arrangement was tastefully executed. Second prize went to Capt. Lewis Riall, whose lot contained many choice and rare shrubs, such as we are led to expect from Old Conna Hill. Third prize fell to Mrs. Keith, who also put up a fine lot, in which *Exochorda Alberti* was conspicuous. Class 57, for a collection of 12 vases of hardy flowers, produced good competition. First honours in this class fell to Judge Bird with a boldly arranged group, in which hardy bulbs were conspicuous: flowering shrubs and the old double Wallflower were also well shown. Second prize went to Sir F. Shaw, whose exhibit was very dainty, but lacked something in arrangement. More shrubs were shown here, and had they been cut bolder and been well set up would probably be placed first. Perhaps the prettiest vase in this competition was shown in this exhibit—viz., the single *Kerria japonica*. Third prize fell to Stanley H. Cochrane with a well set up lot, which, however, was lacking a little in quality.

If we might suggest it, there is room for still more variety in the hardy cut flower exhibits. Among shrubs, for instance, *Exochorda Alberti macrantha* is in full beauty in mid-April, and it is by far the finest form; *Ceanothus rigidus*, a strikingly beautiful plant, is likewise too seldom seen, while the new *Forsythias*, *Viburnum Carlesii*, and many fine *Pyruses* and *Prunuses* seem yet unknown in private gardens.

TRADE EXHIBITS.

Messrs. Baker's, Wolverhampton, put up a dainty exhibit of Alpines, backed with Japanese Maples and white and yellow Broom. Outstanding groups in this exhibit were *Houstonia serpyllifolia*, a dainty little plant with pretty pale blue flowers; *Incarvillea grandiflora*; *Aubrietia* J. S. Baker, very fine; *Primula denticulata alba*, a fine form; *Omphalodes cappadocica*, and *Viola Purple Robe*. *Silver Medal*.

Mr. Jones, F.R.H.S., Kilkenny, staged some very handsome giant Polyanthus, showing a fine range of colours, and also a fine assortment of their noted Auriculas. The feature of this exhibit, however, was a fine double-flowered Primrose, named *Rose du Barri*, which aptly describes the attractive colour. *Very highly commended*.

Near by, the Tully Nurseries, Kildare, put up a nice collection of Alpines and some very pretty Auriculas. Notable among the Alpines were *Helichrysum bellidioides*, *Primula Julia*, *Anchusa myosotidiflora*, *Primula viscosa* (hirsuta), *Wahlenbergia serpyllifolia*, *Viola gracilis* varieties, *Mazus rugosum*, *Asperula suberosa*, evidently a strong favourite at Tully, and a nice group of *Rehmannia Henryi*. *Primula longiflora* was also strongly shown in this exhibit. *Silver Medal*.

Messrs. Chas. Ramsay, Ballsbridge, had a very fine exhibit at one end of the hall, composed of handsome floral designs and masses of fashionable flowers. Roses and Blue Hydrangeas were a feature; while Carnations, Mignonette, Double

Stocks, *Daphne Cneorum*, Ferns, Marguerites, and Rhododendrons made a delightful display. *A Gold Medal awarded*.

Messrs. Baylor Hartland, of Cork, showed a fine mixed group, in which we noted choice Orchids in variety, *Myosotidium nobile*, *Deinantha cœrulea*, a rare new plant; *Viburnum Carlesii*, *Zenobia speciosa*, and a collection of popular Alpines. The same firm showed Cottage Tulips and a fine lot of Daffodils, among which a fine new variety named R. H. Beamish was at once noticeable with its sulphur trumpet and pure white perianth.

Messrs. A. Dickson, Blackrock, showed very handsome standards of *Abutilon vexillarium* of graceful appearance as well as ivy-leaved *Pelargoniums*, *Schizanthus*, a good strain of *Primula obconica*, greenhouse *Calceolarias*, and handsome tiers of Perpetual Carnations in leading varieties. *Silver Medal*.

Messrs. Watson, Clontarf, were represented by an exhibit of Alpines in pans and pretty bushes of Dwarf Polyantha Roses. Of Alpines, they showed *Primula rosea* in fine form, *Viola gracilis* and varieties, *Polygala Chamæbuxus purpurea*, and many others. The same firm showed the handsome Ivy *Hedera Helix dentata variegata* and the always lovely *Cytisus præcox*. *Silver Medal*.

Messrs. R. Jameson & Sons, Royal Nurseries, Sandymount, had an effective exhibit, showing their well-known floral designs and a choice array of beautiful flowers, for which they were awarded a gold medal. Here we noted at once the too seldom seen *Boronia megastigma*, so charmingly scented, and also *B. elatior*. A large epergne was furnished with *Antirrhinums*, while Roses, Carnations, and many other choice flowers were beautifully shown. Among the Carnations were several new varieties, notably Philadelphia Pink and Champion, both of American origin. Other very fine varieties were Yellow Prince, Peerless Pink, and Gorgeous, all showing evidence of good cultivation. *Gold Medal awarded*.

Messrs. Browett, Kingstown, showed boxes of their magnificent Pansies, as well as remarkably fine Hydrangeas in small pots. Ferns, Spiræas, Cytisuses, and Clematis, backed by handsome Palms, well maintained the reputation of this enterprising firm. *Silver Medal*.

The Lissadell firm were not quite so strong as usual, but had nevertheless a very fine series of their well-known Daffodils, and also boxes of popular Alpines. *Very highly commended*.

Messrs. Pennick & Co., Delgany, were represented by a comprehensive collection of shrubs, for which this firm is justly famous, and numerous other charming spring flowers in variety. *Highly commended*.

Messrs. Young & Co., Hatherly, Cheltenham, had a remarkable exhibit of Carnations, which was quite a centre of attraction. The vigour and size of the blooms were immediately noticeable, and as all the newest and best sorts were shown in quantity, this stand was an outstanding feature of the show. *Gold Medal awarded*.

TABLE DECORATION.

Floral dinner table decoration is probably the most popular use to which cut flowers are put, and for that very reason taste in it should be

encouraged. There is also room for more originality, which, if the tables decorated for competition at the various flower shows are to be taken as examples, is still lacking, and there are still people who consider a tall centre piece, hiding those at the opposite side of the table completely from view, more effective than a light dainty arrangement of flowers which in itself alone would encourage one to sit at table. Visitors to the Royal Horticultural Society's Spring Flower Show, held at Ballsbridge on the 15th and 16th of April, had the opportunity of seeing six tables, decorated for competition, in a variety of styles. The first and second prize tables the flowers had been well selected, the arrangement was good, the ribbons used were exactly the shade of the flowers, and both tables were light, the diners would have had no difficulty in seeing and speaking to each other. The plates and glass used were also in accordance with the rules laid down in the schedule and suitable to the decoration, there was also room on the tables for the necessary dessert dishes, &c. (as these tables were all laid for dessert).

The colour of the flowers is the chief thing to be considered. Many very nice light and easily arranged flowers will be useless at night owing to the fact that they change colour in artificial light. This applies to a great many Lilac flowers, purple and magenta, and the two latter colours should not be used, as they are bad night colours. On the other hand, very pale colours are apt at night time to look insignificant. If clear glasses are used they should be perfectly clean and the water absolutely fresh. The first prize table at the Horticultural Show was very well carried out in every detail, and perhaps the only detail about which there could have been a question was whether the colour of the pale blue Anemones would have been too faint at night. The small low glasses arranged in a circle, with ribbons which matched them exactly, was a very charming idea, well carried out, and the dainty circle of small leaved Ivy surrounding the glasses gave the finishing touch.

Contrasts should be avoided as much as possible, they are not as a rule pleasing or restful, but, of course, the necessity for a contrast may arise, in which case great care should be exercised that the weaker colour predominates. This remark also applies to all et ceteras used in table decoration, such as ribbons, chiffon or other material, unless the exact shade can be used, any other should be paler than the flowers. Strongly scented flowers, such as many of the Lilies, Polyanthus Narcissus, &c., are not good subjects, as people often object to the heavy smell, which naturally becomes still more oppressive as the temperature of the room rises. There is an idea still in existence that because the subjects used have bloomed under glass, and demand expensive conditions, that they take precedence of many of our beautiful hardy garden flowers, which any gardener, however small his plot may be, can produce. Surely a table decorated with Sweet Peas, Columbines, Iceland or Shirley Poppies, or scarlet Pöe Anemones, can be made to look every bit as charming, if not more charming, than one carried out in Orchids (Cattleyas, Calanthes, &c.), Malmaison Carnations, or even Mimosa (Acacia), which can only be had either for the buying or by those who have glasshouses.

R. M. P.

The Month's Work.

The Flower Garden.

By WM. G. WADGE, Gardener to Lady O'Neill, Shane's Castle, Antrim.

THE work that will occupy most of our time this month is the filling of the flower beds for a summer display, and the preparation of the beds for the plants and the plants for the beds. The last ten days of May and the first ten days of June are the days during which most bedding out is usually done: a little earlier or later according to the season and the locality. Get everything in readiness—beds dug, manured, trodden firm, and raked level: watering may also be necessary, especially where the Wallflowers have been blooming. Do not use rank manure, especially for beds to be filled with Geraniums. Spent hot bed material—which is usually half leaves—when decayed, is very suitable. Bulbs and Polyanthus that are lifted as the work proceeds should be planted on a reserve border; for the Polyanthus it is better if partially shaded. As regards the plants to use, much depends on individual taste. A greater variety is used now than formerly, but for furnishing beds of a geometrical design, the old Geraniums, Calceolarias, Begonias, and Violas are hard to beat. In large beds standing by themselves, dot plants, when well grown, are very handsome, and relieve what might be monotonous. The locality must be taken into consideration—whether warm or cold, sheltered or exposed. Better a bed of Geraniums growing and flowering well than tender greenhouse plants refusing to grow, and presenting a miserable, uncomfortable appearance. A writer, recently describing a certain estate, wrote of the flower garden that there was neither a bed of Geraniums nor a single Geranium plant used throughout. The time when that will apply to many places is not yet.

Continue the process of hardening the plants. To do this carefully entails considerable labour in moving plants from one position to another when they have to be grown in fruit houses, and the plants are of secondary importance. Place the more tender subjects, such as Heliotrope, Alternanthera, Iresine, Coleus, and Salvia together; by so doing these could readily be protected at night on occasions when it would be unnecessary to cover others that are more hardy. Guard against starving the plants. Weak manure water may be given with advantage if the pots are filled with roots. Large trained plants must be plunged to the pot rims in ashes in a sheltered corner, and made secure against wind.

PLANTS IN VASES AND TUBS.—Vases add much to the embellishment of the flower garden when well furnished with suitable plants. The soil for these should be rich: the roots being confined, the plants will not grow unduly strong. Vases being usually placed in prominent positions, it is essential that good plants be selected, and every encouragement given them to start into active growth. Damp over the foliage occasionally in warm weather; and when the roots are working freely, a little feeding should be given. Fuchsias are suitable for vases, the raised position showing

off the pretty, pendulous flowers, but they must only be used for the more sheltered vases. Marguerites are suitable for a windy position, also strong-growing Geraniums, such as Paul Crampel. A nice specimen Cordyline, with an edging of some trailing plant to hang over the sides, looks well where bright colour is not essential. The Ivy-leaved Geraniums are ideal for large vases; if a number are planted thickly together, they can either be all left to fall down and ramble from the vase to the ground, or the inner plants can be tied to stakes, and a higher effect is secured. Large tubs filled with plants are very suitable for placing at intervals on terraces or broad gravel walks. Cordyline indivisa, Phormium tenax, and the variegated form, Agaves, Myrtles, Hydrangea hortensis, and Agapanthus, white and blue, may be used in this way, and will last for a number of years if properly treated. The objection to this phase of flower gardening is the amount of greenhouse space the plants occupy during the winter months. Another way is to refill annually with such things as Sweet Peas, Marguerites, Calceolaria amplexicaulis, and Geraniums. The tubs can then be emptied when frost occurs in autumn and stored in a shed.

ANNUALS sown in beds or borders need timely attention to thinning. The chief drawback to this class of plants being used more extensively than they are is the short season of flowering. Judicious thinning will lengthen the time, also keeping all seed vessels picked off and watering with liquid manure. In thinning, it is well to go over the plants three times, removing a few each time. Thin finally when the plants have three pairs of rough leaves, and let the plants stand 6 inches apart, a little more or less, according to the variety.

PROPAGATING PLANTS FOR SPRING BEDDING.—Furnishing the beds for summer effect and propagating for next spring goes on about the same time. Wallflower, Alyssum, Myosotis, and Polyanthus should be sown on a border. Aubrietia and Arabis may be propagated by cuttings placed in a frame, and shaded from bright sunshine.

HERBACEOUS BORDERS.—Scuffle among these to keep down weeds. Thin out the growths of such plants as Phlox, Asters, and Solidago. A few strong growths will give a better display than a crowd of weakly ones.

FORCED BULBS.—These may be planted out in the grass, on the margin of shrubberies, or under trees. In a few years they will flower as freely as new bulbs. By planting now it is possible to ascertain the position of patches from previous plantings. Avoid formal lines or groups, let the aim be so to arrange that when complete the whole shall have a natural or wild appearance. If there is a large quantity, and a fresh space is to be planted, it is best to allow the bulbs to ripen in the boxes: shake out when dry, and plant in September.

ROSES.—Greenfly is sure to make its appearance this month. One pound of soft soap dissolved in boiling water, and then more water added to make 6 gallons, may be used for spraying. Quassia extract, used according to the maker's instructions, is very safe and effectual, or the Quassia chips may be boiled for fifteen minutes, 1 lb. being sufficient to make 1 gallon of spraying fluid.

The Fruit Garden.

By PETER BROCK, Horticultural Instructor
for Co. Fermanagh.

OWING to the exceedingly wet time we have experienced from the first of February to mid-April, the cultivation and cleaning of fruit trees and bushes is, in many places, a long way behind, especially on heavy soils, which have become crusted on the surface from the long-continued heavy rains. No opportunity should be missed to loosen the crust, eradicate weeds, and get the surface into a friable condition, forming a mulch of fine earth that will lessen escape of moisture if a period of very dry weather should set in. Lately planted trees, especially those on porous soils, may require watering; if so, give sufficient to moisten the soil to the lowest roots, and afterwards keep the surface soil stirred occasionally with the hoe.

FROST—This month is generally a critical period for the fruit crops; a few degrees of frost may blight the brightest prospects. Smudge fires placed on the frosty windward side and set agoing when the temperature falls near the freezing point will lessen considerably the effect of several degrees of frost. Smudge pots for use with oil and other burning materials are now largely used in some of the principal fruit-growing districts in America to protect fruit blossom from frost. Fires formed with trimmings of hedges and other slow burning material will also give good results in warding off several degrees of frost.

GOOSEBERRIES.—Where this crop is intended for marketing, give a dressing of nitrate of soda, $\frac{3}{4}$ lb. to twenty square yards, will hasten the swelling of the fruit to a marketable size. Any grass suckers tending to overcrowd the centre of the bush should be rubbed off. If sawfly or magpie moth caterpillars are known to exist in the plantation, spray the bushes with 1 lb. arsenate of lead to 25 gallons water. Apply from a single, small nozzle, under a high pressure, directing the spray downwards, so that the upper side of the leaves may be evenly dewed. This spraying should be done when the fruit is about the size of green peas.

RASPBERRIES.—Remove any excess of weak suckers from base of stools, leaving one or two more than will be required for next year. Catch the suckers near the ground, and with a sharp jerk pull them off from the heel. All useless suckers between the clumps or lines should be hoed out.

STRAWBERRIES.—Attend to hoeing and thoroughly freeing the plants from weeds. Cut the top off runners unless where required for layering. Apply straw or other litter to prevent the fruit from getting splashed. If the weather should be dry and warm, a good soaking with manure water or even clean water will materially assist the development of large and well-finished fruit.

APHIDES.—If the weather be dry and accompanied by cutting winds, keep a sharp look out for aphides—better known as greenfly—which infest peaches, plums, cherries, currants, and apples. If allowed to remain unchecked till they curl the leaves, they are then very difficult to get at except by immersing the shoot or branch in insecticide. There are many insecticides on the market nowadays for economically destroying

all kinds of aphides without injuring the leaves on which they prey. The preparations of nicotine are most effective, if a little extra expense is not considered. For small operations Quassia and soft soap forms a good wash for destroying sucking insects. Steep 2 lbs. Quassia chips in cold water for 12 hours: strain off the cold extract into a tub or barrel; then the chips may be boiled, and what is extracted by boiling added to the cold extract. Dissolve 1 lb. of soft soap in boiling water and add to the quassia, making 10 gallons of wash. Quassia gives best results when its insecticidal properties are extracted in cold water. It is very questionable if what is obtained by boiling will cover the cost of fuel. In applying a wash for sucking insects it should be applied with force to the underside of the leaves in such a way that every part of the tree or bush will be reached. If the preparation of suitable insecticides is inconvenient, the advertisement columns of IRISH GARDENING show where the prepared article can be procured cheaply.

SPRAYING FOR SCAB AND CATERPILLARS.—Those who have been unable to get the winter spraying done satisfactorily have all the more reason to make an effort to attend to summer spraying as directed in last month's IRISH GARDENING. Scab and caterpillars are responsible for heavy annual losses, and unless spraying is attended to so as to keep the trees in a protected condition, the losses are likely to continue and even increase. I may repeat that in spraying for scab and caterpillar, the spray should be applied in a very fine mist from a small nozzle and under a high pressure, merely dewing the trees without causing drip. If the spray is applied like a wash till it runs off the tree, neither the fungicide nor poison are then evenly distributed, as the fluid collects in blobs at the edges or points of the leaves, and is more liable to cause scorching.

The Vegetable Garden.

By ARTHUR HORTON, Gardener to Colonel Claude Cane, St. Wolstan's, Celbridge.

To the gardener, amateur or professional, and the vegetable grower in particular, May is probably the busiest month of the whole year. As most kinds of vegetables will require attention in some way or other, seeds of most varieties must be sown at regular intervals to ensure an unbroken supply, also transplanting of others brought forward in boxes or frames. The timely thinning of seedlings and constant hoeings between all growing crops is most important, especially so in a dry season. Garden pests or all descriptions are very much in evidence during this month. Good dustings of fresh lime and soot should be given to all young seedlings where snails and slugs abound, and must be repeated after heavy rains. Rats and mice unless kept in check will ruin whole sowings of peas and beans in a few nights.

During May and June both the carrot and onion fly are on the wing, and most people know that once either carrots or onions are attacked there is no cure. Therefore measures should be taken in the earlier stages of growth to prevent as far as possible the fly from depositing the eggs on the plants. The best preventive I know is wood ashes, sawdust, or sand saturated with paraffin, and sown between the lines imme-

diately the seedlings appear above the ground, and repeated two or three times at intervals of about three weeks.

SEED SOWING—SPINACH.—To keep up a continuous supply of this vegetable, small sowings should be made about every fortnight. A good position for this crop is between the lines of peas and beans, as a certain amount of shade is given, which is beneficial, especially during July and August. Early in the month New Zealand spinach may be sown in a fairly light soil in an open situation. A distance of 3 feet between the lines and 2 feet 6 inches from plant to plant in the lines should be given. This variety is quite distinct both in growth and flavour from the round and prickly spinach, and certainly much superior to spinach beet.

BEANS.—Both French and runner beans may be sown outside now with little risk of damage by late frost. The latter particularly require a deep, rich soil, and unless the site chosen has been deeply trenched and well manured, it is advisable to take out a trench to a depth of at least 2 feet, and give a good dressing of well-decayed farmyard manure a day or two previous to sowing the seed, which should be about 3 inches deep and 3 or 4 inches apart, finally thinning to 1 foot. When the young seedlings appear above the ground, dust frequently with lime or soot, as slugs have a particular liking for the young tender growths.

BEEF.—About the middle of the month is early enough for the main sowing of beet. If put in much earlier large coarse roots will be the result. It is not necessary or advisable to manure heavily for this crop. The aim should be to get roots of medium size and good quality. This is best attained by sowing about the time mentioned in well cultivated soil that was well manured the previous year. If exhibition specimens are required, it is advisable to bore a few holes to a depth of at least 3 feet, and fill up with a suitable compost that has been put through a 1-inch riddle. A large percentage of roots so treated can be depended on for exhibition.

Continue sowing carrots, turnips, and peas, also one more of cauliflowers for late supply. Salading of all kinds should be put in at intervals of about a fortnight. Where accommodation can be found, it is advisable to put in a few more seeds of cucumbers and tomatoes for autumn use.

CELERY.—Early in the month trenches for celery should be made, so that when the time for planting comes the work can be carried on with as little delay as possible. Nothing is to be gained by making deep trenches, in fact the reverse is the case. Too often all the best soil is taken out, and nothing but the cold subsoil left in which to grow the plants. One good spading is quite enough to take out of the trench, which should be about 15 inches in width and 3 feet from trench to trench for single rows. Where two or three lines are planted in one trench, a greater distance will be necessary. Give a good dressing of manure and break up the bottom to the depth of 1 foot. Early celery may be planted out towards the latter end of the month. The same applies to leeks for exhibition.

FRENCH AND RUNNER BEANS brought forward under glass, if properly hardened off, may be planted out any time after the middle of the month.

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FLOWER SHOW**

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Notes on Tender Shrubs and Plants

(Growing out of Doors in and about Killiney, Co. Dublin).

By RICHARD C. M.M. SMYTH, F.R.H.S., Mount Henry, Dalkey, Co. Dublin.

IN this favoured neighbourhood (the south side of Dalkey Hill and along the shores of Killiney Bay), sheltered from cold winds and subject to very little frost even in severe winters, can be grown enough tender shrubs and plants to satisfy the most fastidious gardener.

In the rock garden of Killiney Castle, situated high over the Vico Road, can be seen the following shrubs and plants growing very strongly, and in their turn flowering well: *Cytisus racemosus* or *Genista fragrans* scents the whole garden; *Cytisus monspessulanus*, another fine variety, blooms early and well; *Cineraria maritima*, with the silvery leaves;

Veronica Hulkeana and *Lavandula*, both in fine flower; *Erica arborea*; various *Yuccas*; *Agathaea cœlestis*, with sky-blue Daisy-like blooms; *Cineraria lobata*, yellow flowers; *Calceolaria violacea* (in full flower now—May 12); *Gazanias*, with orange and white flowers, great bloomers; *Aloe ferox* doing the best; various *Mesembryanthemums* (from Malta) bloom yearly (*Mesem. edule* covered a square yard in a year); *Sempervivum barbatum* (Malta) covered

with yellow flowers; *Sedum dendroideum* spreads into grand plants and masses of bloom. (This plant began to bloom in March and is at its best now—May 12.) In the Fern and Primula portion of the garden will be found *Primula kewensis* and *malacoides* (having been growing

there two years) in good flower, and amongst the Ferns the *Woodwardia* does not object in any way to its outdoor quarters.

In the garden, Mount Henry, Dalkey, in a fairly sheltered corner one finds a very good plant of *Calceolaria Ciliata*, showing now (May 12) plenty of blooms of good size and quality. It is two years in its present



Photo by]

[O. S. Waterlor,

THE DESERT GARDEN AT MOUNT HENRY, DALKEY.

position, and flowered well each year. Close beside it is a plant of *Dimorphotheca Echloneis*, its Daisy-like blooms being much admired for their peculiar colouring.

Various *Fuchsias*, originally from the greenhouse, grow very easily here and there, the size of the blooms being quite as good as when indoors. *Sedum dendroideum* hangs down the walls wherever it is planted; *Veronica Hulkeana* is beautiful; *Gazanias* winter A1, as do various

Sedums from Malta; *Fuchsia procumbens* flowers and fruits each year in the rock garden; that quaint little plant *Othonna crassifolia* spreads about the stones with its golden flowers dotted over it.

In the desert garden (Mount Henry) are a collection of Aloes, most of which bloomed off and on since this particular garden was made in early spring, 1911. *Aloe ferox* showed a splendid head of flowers last year, and is shown in the illustration; two plants of the old man Cactus are quite happy, as are the various *Echeverias*, *Cotyledons*, Cacti, *Phyllocacti*, having blooms of various colours (one being a beautiful orange shade). *Mesembryanthemums* grow almost too strongly, and have to be clipped in; they all flower profusely, especially the only golden-yellow one I have ever seen. *Sedum Stahlii* is a fine plant. The prickly pears make a good background and grow apace. Even the Mexican *Mamillarias* seem quite at home; two of the five in the garden bloomed last year.

This desert garden has a frame over it during nights in winter, but is always open altogether in the daytime, unless the rain is very heavy. At the end of March the lights are removed till the following November.

This year I have planted here two *Mimosas*, and am in great hopes they will grow in this beautiful spot.

At the Grove, Killiney, will be found Tree Ferns (in the heart of one a thrush this year built her nest), *Mimosa* looking healthy, *Bambusa gracilis*, *B. japonica*, Fan Palms, the red-ribbed *Cordyline Banksii*, *Yucca recurva pendula*, various *Magnolias*, *Fuchsias*, and a good collection of *Eucalypti*, comprising the following varieties, all seemingly suited to their surroundings:—*Eucalyptus globulus* (blue gum), *E. urnigera*, *E. amygdalina*, *E. coccifera* (with red berries), *E. coriacea*, *E. viminalis* (with osier-like shoots), *E. Gumii*, and the large-leaved one, *E. obliqua gigantea*, *E. tereticornis* (having cylindrical leaves).

I am in hopes that perhaps these notes may

induce dwellers in this beautiful spot to try in their gardens some of the plants I mention. It makes gardening very easy when one has the luck to live in a climate such as we enjoy.

Roses.

By DR. O'DONEL BROWNE.

JUNE is always an interesting and busy month for the Rose grower who pays attention to his Roses. If he intends exhibiting at any show during July he must need bestir himself, as much of the preparation for a show will now fall on the worker's shoulders.

Let him go over his trees carefully as often as possible and check too many rods from coming from the base, and at the same time remove weak growths. These in most Roses will not give good large flowers. I know some of my readers will take exception to this treatment, as we are told that removing too many growths and foliage is bad. Still the judicious thinning of a tree does good in more ways than one, for it allows light and air into the centre of the tree and it diverts sap into proper channels. Let the exhibitor, however, be careful not to have all the shoots carrying flower buds all of the one size in growth; this means a great show of flowers for a few days and then no more. It is odds that if you try this method you will not be strong for show day. I think it is the hardest thing in the world to time Roses



Photo by

[G. E. Low

ALOE FEROX IN THE OPEN AT DALKEY.

to a week or so. Weather, rain, absence of sun, have all to be chanced, and it is too much to leave to chance.

Again, disbudding is most important; by this I mean the careful and gradual removal of the supernumerary flower buds on the point of the shoots. In some cases you must remove all save the crown bud, provided the crown bud is perfect from all outward and visible signs of blemish. Bessie Brown is a typical example of this kind. In other varieties such as George Dickson, La France, and many others, to leave only the crown bud means coarseness. It is therefore a good plan to leave one side bud, and

let it be the lowest on the shoot that you can find for the present. Allow these both to grow, and if forcing weather comes, and to all appearances your crown bud is going to be too early, remove it and let your side one come along. It is a very difficult matter to treat on paper—time and experience alone will help you.

Get your shades out ready, for some buds are very impatient of wet and must be grown under a shade. Bessie Brown again is an example of this class. Those shades

made by Jeffries, of Colvin Road, Thornton Heath, London, are very good and cheap. They are most ingenious, and they are as good as money will buy.

The tying-up of flower buds as they begin to open is another difficult job to master. Berlin wool (double for preference) should be used. Make the first half of an ordinary knot only, pass one end round the other twice, pass this over the shoulder of the opening bud, but inside the petals, and tie moderately tight. This helps to lengthen the bud and keep its shape. Care must be taken not to tie when any moisture is on the flower. Shading Roses acts differently on different flowers; it enhances some shades, but other shades disappear.



Photo by]

[G. S. Waterlour

TREE FERNS AT "THE GROVE," KILLINEY.

Pentstemon Davidsoni.

THIS is a rare and strikingly beautiful plant, a native of North America.

Paying a visit to the gardens at Blandsfort, Abbeyfeix, towards the end of May, dispelled from our mind the doubt that the plant was a "miff" or really difficult to grow, for there, nestling at the foot of a large rock, was a nice piece, nearly a foot across, carpeting the surface of the ground with small roundish leaves and bearing many flowers, about 2 inches in length, of a lovely coral pink.

Before planting, Mr. Hum Bland made a fair sized hole, about 18 inches or 2 feet deep, and filled the bottom 8 inches with broken pot for drainage, and then filled the hole with a compost of loam, peat and grit; the plant has been grateful, and well repaid for the trouble taken by its good health and a profusion of blooms.

New Delphiniums.

AMONGST single-flowered Delphiniums the recent trials at Wisley brought to light none to excel Lizzie Van Veen, with its lovely Cambridge-blue flowers of three inches diameter. *Belladonna grandiflora* has flowers double the size of the type and of the same lovely shade, whilst the new *Belladonna semiplena* is a capital double-flowered form which secured an Award of Merit. *Moerheimi* (unanimous Award of Merit, R.H.S.) is the best white, a splendid variety with free-

branching stems, continuing in flower from June till Autumn. Rev. E. Lascelles (A.M., R.H.S.) is one of the most striking novelties, with double flowers of a rich royal blue with a huge white centre, which is remarkable even at a distance. To the writer's taste no new double variety can compare with *Statuaire Rude*; the colour is a fascinating shade of shot heliotrope; the flowers are nearly three inches across, and are borne on spikes with twenty-eight inches of bloom. *Cymbeline* is the bluest of all singles, with noble spikes of ultramarine blue flowers with white centres—it gained an Award of Merit in 1912. Absolutely ravishing is *Countess of Ilchester*, with large single flowers of sky-blue; it is undoubtedly unrivalled in its shade. Of dark varieties, *The Alake* takes a leading place, bearing gigantic spikes of rich blue semi-double flowers with bold white centres (Award of Merit, R.H.S.) *Zuster Lugten*, with very rich and

striking Oxford-blue flowers, is splendid; and *Lamartine*, though not so new, is one of the best of all dark kinds, as every spike branches, and there is an abundance of striking Prussian-blue white-centred flowers which are good for cutting. *Darius* is a new break, the flowers being of a good pale primrose shade; it gained an Award of Merit in 1912. Mrs. J. S. Brunton is a perpetual-flowering and very beautiful form of *Belladonna*.



THE late Dean Hole used to tell of a hale and hearty man who, on reaching eighty years, described himself as an "Octogeranium." Such a description might well apply to the *Gardeners' Magazine*, which has arrived at the dignity of eighty years, but continues as bright as ever. To celebrate the occasion it is renewing its youth, and has reduced its price from twopence to one penny per week.

Early Summer-flowering Border Plants.

By J. W. BESANT.

EVERY month now brings its own peculiar joys, and not a few are to be found in the hardy flower border in June. This delightful month retains a good deal of the crisp freshness of spring, and yet with its own charming flowers gives promise of fuller joys to come after midsummer's day. Already in May one can discern in the borders many plants which will be flowering in June, and timely feeding with manure water will ensure sturdy growth and well-developed flowers.

Anchusas, by the growth they are making, look as if they would rival the *Delphiniums*, and will in all probability flower much longer. The now well-known variety "Dropmore" remains one of the most satisfactory, and has a good companion in "Opal," which is of a lighter shade of blue.

Anthericum Liliastrium or *Paradisea Liliastrium*, as it should be called, is a very charming white-flowered plant of the Lily family, and commonly called St. Bruno's Lily; white flowers are always welcome, and are particularly pleasing to the eye in hot weather. *Aquilegias*, or *Columbines*, are even now in mid-May full of buds, and will be full of flowers in June and July. There are many strains of these in commerce, and the long-spurred hybrids are general favourites. The colours vary considerably, and are all very beautiful. The strain favoured here is one known as the "Rainbow Mixture," and it proves a very attractive one.

Delphiniums are now so universally grown that it may be hardly necessary to draw attention to them here. Yet, as notes must be made every month if satisfactory borders are wanted, it will be well for those interested to go about freely where *Delphiniums* are grown. So very many kinds are now offered that only a selection can be grown in even the largest gardens. Some of the finer varieties which will be flowering in June are *Arago*, dark blue; *King of Delphiniums*, gentian blue and white; *Capri*, sky blue; *Félicité*, sky blue with black centre; *Lizzie van Veen*, Cambridge blue, and many others. There are in fact sorts to suit all tastes from the giant of 7 or 8 feet like *Arago* to the dwarf *Belladonna* set of which we have singles and doubles, and the even dwarfer *D. grandiflorum*, which, however, is not truly perennial in all soils.

Some of the stateliest plants of June will be found among the *Eremuri*. Some gardeners prefer to group these among low-growing shrubs or in front of a group of larger shrubs, and certainly the provision of a background adds immensely to the effect. However, they are quite manageable as border plants, and in spite of their shallow yet wide-spreading roots can be very effectively planted round with annual Larkspurs, &c., so that when the tall flower spikes are past their best they are succeeded by other flowers. *Erenurus robustus* and its varieties *Elvesianus* and *E. albus* are among the earliest and best, though there is often not much difference between this species and *E. himalaicus*, a dwarfier sort with white flowers. *E. Bungei*, with yellow flowers, comes later, and latest of all are the hybrids known collectively as *E. Warei*, and which vary in colour—yellow, buff, and flesh-coloured.

Through May and June the *Geums* are useful plants, making a good show for some considerable time, *Geum Ewoni*, with golden-yellow

flowers, is very free and early, and is followed closely by *Geum Mrs. Bradshaw*, a very fine plant with large handsome double dark crimson flowers. There is also a yellow counterpart of the latter variety with double yellow flowers.

Heemerocallis flava is one of the prettiest of the "Day Lilies" and flowers early and for a considerable time. Some "Day Lilies" are inclined to be coarse, in that they produce a very large amount of foliage which is not balanced by a corresponding amount of bloom.

Already in May the *Heucheras* are pushing up their flower spikes, and in June will be full of colour. There are many lovely varieties now, and no more useful flowers can be grown for cutting. Such varieties as *H. Sanglant*, *Fantaisie*, *Flambeau*, *Edge Hall*, *brizoides*, *gracillima*, *La Perle*, &c., &c., are of grand effect in groups, and yield any amount of flowers.

In June a host of *Irises* unfold their beautiful flowers and adorn the cottage garden as well as those of more pretensions and often of less beauty. In May the so-called germanica *Irises* are in flower, and are followed in June by numerous other sections, giving greater variety in colour and marking. The sections most prominent in June are *Aphylla*, *hybrida*, *neglecta*, *squaleus*, *variegata*, *pallida*, and numerous other *Irises* such as *Cengiali*, dwarf with deep blue flowers; *I. flavescens*, primrose yellow; *I. florentina* and *florentina albicans*, white, &c. Each of the above sections is characterised by some distinctive colour which varies in the many varieties in each section.

Pæonies contribute not a little to the June garden, and are represented chiefly by the double forms of the European *Pæonia officinalis*, and both and single and double forms of the Siberian *P. albiflora*. Among the varieties of the latter are some of the fairest flowers of the summer garden. Many are sweetly scented, and while the white, pale yellow and rosy doubles are most popular, some of the singles are of superb beauty, rivalling the purest of Water Lilies.

Papaver orientalis, the giant Oriental Poppy, is a gorgeous flower of early summer. It should, however, be very judiciously planted in the border since it is over early, and will leave a sad blank if arrangements are not made to have later flowers planted in front of it to hide the poppy leaves as they wither and keep the border gay with flowers. Many kinds are in commerce, but a few will suffice. Good deep crimsons like *Oriental King* and pinks like *Jenny Mawson*, *Princess Ena* and *Mrs. Perry* are most satisfactory.

Pyrethrums both single and double are essentially early flowerers, though with care they will flower also in autumn. They too, if planted in borders, must be judiciously screened with annuals of sorts so that there may be no blanks when the first flush of flowers are over.

A rather handsome plant which flowers early is *Thalictrum aquilegifolium*, which, as the specific name implies, has *Columbine*-like leaves and bears feathery heads of flowers composed of bunches of purplish stamens with yellow anthers.

Perhaps a good many other early flowering plants might be noted, but sufficient has been said to draw attention to the wealth of material available for an early display. Those who would add to or improve their collections of early flowering herbaceous plants should make every endeavour to visit good trade and other collections in June, so that the different species and varieties may be seen actually growing and a selection made to suit individual tastes.

Seedling Daffodils in Co. Antrim.

By HERBERT STEVENS.

ON a typical April morning, amidst alternating beams of sunlight and showers, we motored from Portadown to Co. Antrim, to about four miles beyond Ballymena, almost to the slopes of Slemish, the mountain where St. Patrick spent the early years of his life. Here we met Mr. Guy Wilson, of Knowhead, Broughshane, a young man with a hobby for gardening, especially the raising of Daffodils from seed. Whilst being connected with a large business firm, Mr. Wilson has found time to work amongst his favourite flower, and wonderful success has attended his efforts. It is some years since he raised his first seedlings, and since then he has disposed of some novelties, which have reached almost £20 a bulb. Mr. Wilson is an enthusiast, and has already met a large circle of friends amongst Daffodil growers on this side, and especially in England, where many of his novelties have achieved great distinction.

We were particularly struck with the luxuriant growth of all the Daffodils he cultivates, convincing us that there is a great future for the industry in this country, which has already become famous in many departments of horticulture.

On entering the avenue our attention was arrested by the large breaks of bloom on a far-reaching lawn. Here we found in well arranged clumps such varieties as Madame de Graaff, which lends itself to naturalising. Other varieties growing in this manner in profusion were several Poets, Chaucer, Horace, a pure white with overlapping petals and intense red crown, Citron, Herrick; all of these presented a striking appearance amongst the grass, and here and there, by way of contrast, were fine clumps of Blue Grape Hyacinths (*Muscari*).

In the garden, which faces the mid-day sun, planted in rich loam, and wonderfully free from weeds, were quantities of varieties that are yet uncommon, and to see them here one would imagine otherwise. Here were King Alfred, with large trumpet of self-colour, intense pure golden yellow, most perfect in shape, and with enormous stalks measuring two feet in length, and which the hybridiser informs us has proved one of the most useful parents for many novelties. Here also were Weardale Perfection, one of the most refined of the trumpets; Lady Margaret Boscawen, a giant bicolor; Incomparabilis, a fine decorative variety; Gloria Mundi, which Mr. Wilson still thinks one of the best orange-crowned Incomparables; Buttercup, a Jonquil hybrid of a lovely golden colour.

Amongst doubles some lovely blooms were to be seen of Golden Rose and Primrose Phoenix, also Sulphur Crown varieties well grown, with long foot stalks, and much prized as cut flowers.

Our enthusiasm rose to the highest pitch when we were shown Mr. Wilson's seedlings, beautifully staged in the drawingroom on a terraced stand, which would have done credit to any exhibitor. Here were seedlings that had taken five to six years to develop, surely a lesson in patience when we remember that the Rose hybridiser can sow his seed and have blooms in the same year.

Amongst the many crosses, we noted some extraordinary blooms, which for perfect form, stamina and strength will command a high price when put into commerce.

Some of the more striking were:—No. 2/30, a

very beautiful large, pure white trumpet, perianth and trumpet being equally white, and the perianth standing flat and at right angles to the trumpet; this is a seedling from Madame de Graaff crossed with another white trumpet. No. 2/44, a fine Poet, raised between Horace and Virgil, having fine substantial overlapping snow-white perianth and lovely red eye with a cool green centre. No. 3/13, Madame de Graaff crossed with King Alfred, a beautiful decorative flower, with white perianth and graceful expanded pale, cool primrose trumpet, and having a very tall stem; this cross has given several nice flowers, including No. 3/24, a beautiful pure deep lemon self trumpet. No. 3/15, a flower of the Giant Leedsii type, absolutely dead pure white, and we understand it opens pure white on the plant. While No. 3/19 was a wonderful white trumpet of quite exceptional purity; beside it Madame de Graaff looked quite yellow.

After lunch we were conducted to another garden in which were whole beds of seedlings. Amongst those that drew forth our admiration were some lovely Johnstons seedlings, which were not only lovely in their delicate tints, but models of form. These, we understand, were obtained by crossing *Triandrus albus* and Madame de Graaff.

We stood in raptures over a bed of seedlings raised from crosses made with King Alfred and Madame de Graaff, which had produced many wonderful trumpets of enormous size, and the majority with foot stalks two feet in length. One of the largest trumpets yet raised by any grower is one possessed by Mr. Wilson, which is a cross between Preston and King Alfred. This great yellow trumpet measured 5½ inches across.

In the Giant Leedsii section a cross made between Minnie Hume and Pearl of Kent was responsible for one perfect bloom, which was quite untouched by the burning sun of the last few days, its splendid broadly overlapping solid pure white perianth remaining perfectly flat and smooth.

We were anxious to have Mr. Wilson's opinion on what he considered would be the best varieties for commercial purposes amongst the present novelties, and the following are some of the varieties he selected:—White Lady, tall ivory Leedsii; Horace, extra fine, strong quickly increasing Poet; Albatross, a large white Barrii with orange-tipped crown; King Alfred, when plentiful, will, he says, be the finest of all market flowers, with its great stems, glorious colour and form, with extraordinary lasting powers; Weardale Perfection produces grand plants when grown slowly, and gives noble blooms with great stems; Homespun is a very refined soft yellow Incomparabilis.

Amongst the very best red cups are White Lucifer and Firebrand. There are many others, but these, it is predicted, will occupy the foremost place with market growers in the future.

As already stated, the growth of all we saw was extraordinary, and we were anxious to find out the secret of it. Mr. Wilson tells us that it is necessary to manure heavily with ordinary farmyard manure, and to prepare the ground with a previous crop of early potatoes, and when planting, add about 2 ozs. of bone-meal to the square yard. The ground selected must be well drained, moist and cool. Great importance was attached to the constant surface hoeing; by this the plants respond visibly. The chief points to remember are early planting, never later than the end of September; never cut the foliage till it dies naturally, never give fresh manure.

In a Small Rock Garden

By E. B. ANDERSON, Sandymount.

OWING to the fact that the sun does not fall on my garden till nearly the end of February, my Alpine year does not begin till then. The first plant to bloom with me is *Sax. oppositifolia* latina; this is a robust and beautiful Italian form with large lilac-pink flowers, which open quite flat, and are very cheery in the early year; it is doing well in peaty moraines, wet and dry. A little later the type *S. oppositifolia* comes into bloom, and also a form called *splendens*, between which and the type I cannot see any difference: both grow well with me in sandy soil in full sun, and cover themselves with bloom; the type specially has in the last two years been literally smothered with bloom; it has been in its present position three years, and so far is showing no sign of that dying off in the centre to which it is said to be subject. I attribute this to a yearly top-dressing, but whether my theory that this dying off is due to the absence of this I cannot yet say definitely. The last form to flower, at the end of March, is *Sax.*

oppositifolia coccinea (*syn.* W. A. Clarke), a form found, I believe, originally in Wales, its growth is much frailer than the type, and it does not flower so freely with me, but this lack of flower is compensated for by the extraordinary brilliance of the buds and glowing purple-crimson flowers; it is growing well in very gritty soil in full sun. About the same time the sweet little *Sax. retusa*, with ruby buds and starry pink flowers, makes a pretty show in the wet moraine. I grew it originally in a dry moraine, where it flowered fairly well, but I noticed that at the beginning of August a large number of buds formed, most of which, however, dried up before winter. I attributed this to lack of sufficient moisture, and so last autumn moved it into the wet moraine to try and prevent this, for if all these buds developed in spring it would be a sheet of pink, whereas so far I have had to be content with a somewhat sparse display from the buds formed later in the autumn. This August will, I hope, prove the correctness or otherwise of this surmise.

While on the question of Saxifrages I wish to

call special attention to two hybrids—*Sax. Borisii*, with red buds and soft yellow flowers, and *Sax. Petraschii*, with glistening white ones; wee tufts have flowered with great freedom in sandy, gritty loam, and the flowers in each case are of good shape.

Very early in March *Primula Sibthorpii*, which in short is a lilac-pink *Primrose*, started flowering and is only just passing over; it seems happy in loamy soil and sheltered from the sun by a rock. It is a native of the Caucasus.

To me the dwarf *Narcissi* always makes a special appeal. *N. cyclamineus* starts the procession: in sandy peat by the side of a little bog it has flowered regularly for three years, and so I conjecture it is getting established, and with a pot full of seedlings in addition I fear nothing.

It is usually followed by *N. Bulbocodium* "Early Yellow" which last year flowered with great freedom: this year it is either dying or, I hope, only taking a rest; poor foliage and no flowers. Beautiful as it is, I think it is surpassed by the form *citrinus*, which after taking a year's rest has again delighted me with flowering. Of the minor form of *N. Bulbocodium* only one out of three original bulbs remains, but this is flowering well, and the type is just sending up



HELICHRYSUM BELLIDIODES AT MUCKLAGH, CO. WICKLOW.

buds. All these are in sandy peat near the bog, but further up the bank than *N. cyclamineus*, and so drier. The beautiful *N. moschatus* (of Hayworth) has settled down in loam on the north side of a rock, and has flowered freely for three years.

I do not like comparisons where all are beautiful, and will therefore only say that *N. juncifolius* is a gem with the others; this in sandy gritty soil in a crevice is doing well; the first year it did not flower, last year it flowered freely with one bloom on each stem; this year it has two or three blooms on a stem. In addition to its other good points it has an exquisite fragrance.

These *Narcissi* seed freely if fertilised, and I have several pots of vigorous seedlings.

Indispensable for even the small rockery are the Tulip species. I started with *T. pulchella*, *p. lyaconica*, *undulatifolia*, *saxatilis*, *clusiana*, *persica*, *montana* and *Haageri nitens*. Of these *T. saxatilis*, *pulchella* and *montana*, after once blooming, "went home"; *T. pulchella lyaconica* and *undulatifolia* are alive, but have not yet

flowered; *T. persica*, with bright yellow flowers and buff exterior, flowers freely and is increasing, so is *T. Haageri nitens*, with brilliant vermilion blooms, most telling in the sun; *T. clusiana* took a rest for a year, but is blooming again this year, a beautiful thing with pink exterior to the petals and snowy white interior enhanced by the glowing red purple eye. All these are in sandy loam and chips in the hottest part of the garden.

Among odds and ends *Draba ciliata* pleases me greatly, it blooms very freely; the flowers are large and well formed and of a pure white colour, it seems quite at home in a moraine of chips and sand only, and is beginning to run about, a sure sign of happiness.

In a moraine of chips and loam, seedlings of *Alyssum idæum* are just in bloom; the flowers are of a bright pure yellow on plants only one inch high; when the plants have grown a little it will, I feel sure, be most attractive.

Although my garden is so small, I could go on talking about its plants for some time, but even a reader's, let alone an editor's patience may be exhausted, and so I will close with a passing reference to *Campanula tridentata* just coming into bloom. The habit is very dwarf, 2-3 ins., flowers large, of a glistening brilliant purple and freely borne; it grows well with me in sandy loam and chips on a little plateau in full sun; its only fault is that slugs are inordinately fond of it, and will browse on it time after time, until the plant gives up in despair. Other plants in bloom are—*Iberis petraea*, white, 2 ins.; *Onosma alba rosea* in a chink; *Androsace lactea*, white, in moraine; *Dodecatheon alpinum*, rosy purple, 1 ins., in peat; and *Saxifraga decipiens* Codsall, cream, distinct, with cream pink-tinted buds and creamy white flowers.

Helichrysum bellidioides.

THIS charming little New Zealand composite, so rarely seen in gardens, is a subject adapted to succeed in the rock garden, as, when planted in a sunny position, it produces its flowers in wonderful profusion, almost completely submerging its foliage.

The everlasting daisy-like flowers are produced on scapes rising only from 4 to 6 inches in height; the floret rays are of a glossy white, while the disks of the flowers are of a yellowish green colour.

The tiny foliage of the plant is pretty, its under surface being covered with a soft, white pub-

escence, and when the flowers are absent from the plant, there is a charm created by the foliage, which alone is sufficient to justify its inclusion in the rock garden.

The plant itself has a procumbent habit of growth, and quickly covers its allotted space, as will be evident by a glance at the illustration, the plant here only being in its present position for two years.

An ideal position for the plant is one in which sun is present during the greater part of the day, as the flowers of *H. bellidioides* are not seen to the best advantage unless placed in full sun, failing to open to their full beauty.

Its propagation presents no difficulties, as cuttings taken from the young shoots produced after flowering will root readily if inserted in a sandy compost and placed in a cool frame.

H. C. ELSDON.



ERINACEA PUNGENS AT CAMBRIDGE BOTANIC GARDENS.

Erinacea pungens

IN *Erinacea pungens* we have one of the most beautiful of rock plants, and although it is over a century and a half since it was first introduced into this country, it is still very rare.

A native of Valencia and Morocco, where it was first discovered by Clusius, and one can imagine his delight when he first discovered this charming little shrub, totally unknown to every other

botanist at that time, and what added to the value of his prize was the way it evaded his grip with its sharp spines.

It forms a dense, spiny, almost leafless little shrub with bluish-purple flowers, which are arranged in clusters of five to eight, during April and May.

The seeds are produced rather sparingly, even in a wild state, and this undoubtedly is partly the reason why this plant is somewhat rare. Then, again, it is not recognised as a hardy plant, although there are few parts of the country where it could not be grown with success if planted in well-drained soil and given a sunny nook in a sheltered part of the rock-garden.

Seeds should be sown as soon as ripe, this being the best method of propagating it, although if young shoots are placed in sandy soil under a hand-light, it is possible to get a few to root, but layering will be found a much better method.

The illustration is of an exceptionally fine specimen, over 1 foot high and 28 inches in diameter, growing in the open in the Botanic Gardens, Cambridge, where it has been growing for several years.

F. G. PRESTON.

Notes on Moraine Gardening.

By MURRAY HORNIBROOK, Knapton, Abbeylax.

THE cultivation of Alpines in, so called, moraines is still, for most of us, in its experimental stage. Increasing experience has taught me to believe that there is no other method of gardening which calls for such careful attention to the results of personal experiments and such disregard to all hard and fast rules and written instructions. One authority will tell you to make your moraines from stone chips with "just a trace" of soil; another advises a much stronger mixture, artificial irrigation and a concrete tank.

These diverse instructions bewilder the moraine disciple, until he realises that authority No. 1 must live in a place having a heavy annual rainfall, while No. 2 must reside in a spot where he suffers occasionally from drought. The wise man experiments with various mixtures until he hits upon that which is most suitable to his own climatic conditions.

I have experimental moraines of limestone mixtures and granite mixtures in varying proportions, from stone chips 2 in 3 to pure stone chips: there are also moraines composed of local gravel (unbroken) plus soil. Although some of these moraines date back to 1910, very few of the plants are particularly strong, as they are constantly shifted from one to another to test the suitability of the mixture; for instance, *Douglasia vitaliana* thrive in moraine composed of broken slate—3 in 5—but never flowered. In the hope of forcing it to flower, it was then placed on a starvation diet in a moraine of gravel, 3 to 1. Here it bore four flowers, but almost expired from drought last summer. It is now fairly convalescent in a similar but rather richer moraine. Some plants are at home at once, others are difficult to please. I have not yet succeeded in establishing *Campanula excisa* or *C. morettiana*, but *C. alpestris* (*C. allioni*)—the lime hater—grows steadily in pure limestone chips. Other plants succeeding here in pure limestone are *Edraianthus pumilio*, *E. caudatus*, *E. dinariensis*, *E. Kitaibelii*, *Chænorhinum* (*Linaria*) *glareosum*, *Androsace villosa*, *Douglasia lævigata*, *Thlaspi cepeæfolium*, *T. limosellifolium*, *T. rotundifolium*, *Campanula stenocodon*, *C. acutangula*, *C. mirabilis*, *Saxifraga squarrosa*, *S. patens*, *S. Fosteri*, *Acantholimon acerosum*, *A. lepturoides*, *Æthionema antitaurum*, *A. aloides*, *A. cordatum*, *Potentilla nitida*, *Convolvulus nitidus*, *Veronica bombycina*, *Saponaria lutea*, *S. Wiemanniana*, *Geranium sessiliflorum*, *Viola olympica*, *Helichrysum frigidum*.

In limestone, 3-1, all the good *Engleria Saxifragas*, also *S. Borisii*, *S. Kyrrilli*, *S. Petraschi*, *Androsace albana*, *Campanula raddeana*, *Bellium bellidioides*, *Dianthus sylvestris*, *D. superbus*, *Stachys corsica*. In limestone road grit 3. *Erinus alpinus*, *Viola cucullata*. In gravel 3, peat and leaf soil 1, *Alyssum spinosum*, *A. Bornmulleri*, *A. serpyllifolium*, *Arabis Androsace*, *A. Sturii*, *Papaver alpinum*, *Dianthus Lereschei*, *D. arenarius*, *D. gelidus*, *D. gallicus*, *D. Freynii*, *Draba dicranoides*, *D. ciliata*, *D. Salomonii*, *D. brunæfolia*, *D. borealis*, *Campanula alpina*, *C. Raineri*, *C. Waldsteiniana*, *C. Aucheri*, *Symphandra Wanneri*, *Arneria caespitosa*.

In granite 4, leaf-mould 1. *Sax. lævis*, *Viola Zoysi*, *Wahlenbergia albo-marginata*, *Callianthemum anemonoides*, *Arenaria ledebouriana*, *Omphalodes Lucelliae*, *Saxifraga lilacina*.

The granite moraine is in half shade, the others in the sun. I find that the majority of plants here prefer a fairly coarse mixture—stone chips of from 1 inch to 1½ inches long. If the mixture be too fine, evaporation is too rapid in the spring (when the arrival of the parching winds unfortunately coincides with the growing period). If the material be coarse enough, and the mixture be a suitable one for the climatic conditions of the garden in which it is situated, the plants will, with few exceptions, practically look after themselves, and the only further assistance one can give them is to make the moraine at least undulating in form.

I have heard people say "I would like a moraine, but I have not made one, as they are such eye-sores." Unfortunately, this is too true of the majority of moraines, and yet there is no reason why they should be eye-sores. I do not know to whom we are indebted for the idea of the flat-sunk moraine bed, with slabs of stone sunk in it flush with the surface, but it certainly has been the model for the majority of the moraines I have seen. It is not only needlessly ugly, but also needlessly adds to the difficulties of cultivation. In a dead level moraine bed each plant receives from nature an equal amount of moisture, irrespective of its requirements. The bed has, therefore, to be made of a mixture suitable to the requirements of the drought lovers, and the moisture lovers have to be assisted by hand watering. One has only to recall the dissimilar requirements of such plants as *Silene Elizabethæ* and *Campanula velutina* to realise the difficulty of finding suitable situations for the plants in a flat bed. If, on the other hand, the moraine be made to flow down naturally from a height, the slopes bolstered up by large retaining stones, and whole moraine undulating—hills and hollows—the plant must be very capricious for which a spot—dry or moist, whichever it prefers—cannot be found, and, furthermore, such a moraine, so far from being an "eye-sore," looks natural, and works into the general scheme of the rockwork.

The condition of the plants in some of the "flat-bed" moraines, such as those of Glasnevin and Lissadell, is, no doubt, a joy to behold, but that condition could not be attained without the constant attention of the man with the watering can, and the aim of the rock gardener—not only for reasons of economy, but as a matter of principle—should be to endeavour to grow his plants by the exercise of such skill in planting, and forethought as to soil and situation, that no artificial watering should be necessary. The sloping moraine is not difficult to make, and its large retaining stones—which can be utilised with effect even in the more or less flat portion at the base—not only look as attractive as the flat sunk "slabs" look unattractive, but have the additional advantages of being firm to walk on, and, by their contours, to relieve the surface of the moraine from that appearance of having been daily carefully watered and rolled which so many of them possess.

Later on I hope to give some notes on some of the newer plants suitable for growing in moraines.

Magnolia conspicua superba.

KNOWN as the Yulan, this beautiful hardy shrub or small tree comes from China, and in April and the early part of May bears flowers in the greatest profusion.

The typical form bears large snowy-white flowers, and grows from 15 to 30 feet high. Mr. E. Sutton kindly sends us a photo of that fine variety—*Magnolia conspicua superba*—growing

Hints to Novices

By MAY CROSBIE.

By the beginning of this month all the spring bedding stuff will be over and the beds will want digging. If the ground was manured in the autumn it will not want any now, but the addition of wood ashes or old potting soil will be a great help to the plants. If the summer bedding plants have been raised in the garden lift them from the nursery beds with a good ball of soil and plant firmly, watering them in well.



Photo by]

[E. Sutton

MAGNOLIA CONSPICUA SUPERBA.

10 feet high, at the Gardens, Kilkenny Castle.

in the gardens at Kilkenny Castle, and writes:—"The plant is against a wall facing S.S.W., about 10 feet high, and was planted about twelve years ago. You will see by the enclosed photo how well it looked this season."

There are several hybrids from the Yulan and *M. obovata*, such as *Magnolia Soulangeana*, with similar flowers to the above, except that the flowers are purple-tinted, and a still deeper coloured form is known as *M. Soulangeana nigra*. *Magnolia Lemei* is another hybrid from the same parents with extremely large flowers.

Magnolias are impatient of root disturbance, and like a moderately good soil of a free and open nature.

If the weather is dry they will require to be well watered every second evening until they are quite established. It is always wise to keep a few of each kind in reserve to replace any that fail or come untrue to colour.

If the Tulip foliage is still green when they are lifted, they must be heeled in a shady place to mature. When the foliage has turned brown, the bulbs may be lifted, dried in a shed, and stored till planting time in the autumn.

Polyanthus and Primroses, even if they are in a permanent place in the border, ought now to be lifted and replanted, as when the clumps get too big they never flower as well. Every second year is often enough to divide them. When the clumps are lifted the new roots will be noticed

higher up on the stem than last year's. Break up the clump, choosing young pieces with only one crown, and plant deep enough to well cover the young growing roots. These can be planted in a damp place till the autumn, and the space they occupied in the flower border can be filled with annuals or such like for the summer. To get the best results with *Polyanthus* they must have plenty of nourishment and partial shade; they like the manure well rotted and mixed with leaf-mould.

Most of the spring flowering rock plants are over and will want attention. It is a great mistake to let any of them set seed (unless, of course, seed is wanted for propagation). All the *Arabis* family and the *Aubrietias* and *Cerastiums* may be cut hard back, leaving only a very little of last year's growth; they look very bare for a short time, but in a week or so new growths appear and make a thick carpet of fresh foliage. If this is not done the plants are apt to get bare in the centre or oldest part with long bare trailing growths that get blown about and broken in wind. From the new shoots that appear after the cutting pieces can be chosen for cuttings if more plants are wanted. Choose sturdy shoots and, if possible, break them off with a "heel" of the old wood; dibble them in very firmly in a north or cool border.

Alyssums do not want such hard cutting, but if they are spreading too much they will stand hard cutting if it is done now.

All *Violas*, at the end of the month, when their best bloom is over, ought to be cut back, the soil loosened round their roots, well watered, and if liquid manure is available a little of it given them after a watering with clear water will help them, and they will begin to bloom again in July with renewed vigour. If a stock of young plants is wanted, cuttings can be made of the new growth that start from the base of the old plant.

As a rule amateurs either do not prune their flowering shrubs at all or else they clip them with a shears in the autumn, which is perhaps even worse. For (with the exception of the mauve *Buddleias* and some of the *Spiræas* and a few others which flower on the current season's growth) the best time to prune is immediately after flowering. Use a sharp knife or secateur, prune them fairly hard, especially if they are young plants, keeping the whole bush a good shape. Wall shrubs, such as the blue *Ceanothus*, *Forsythia*, &c., ought to have their young growths tied to the wall at the same time. If clumps of *Delphiniums*, *Michaelmas Daisies*, &c., are very big when staking, cut out from the base all the weak shoots; this gives all the more room and nourishment to the stronger ones, and the effect from the plant as a whole when it is in blossom is tremendously improved.

Bomarea Caldasiana.

THIS is a climbing plant suitable for training to a pillar or on the wall of a greenhouse or conservatory. In habit it resembles the *Lapagerias*, producing from its base shoots which grow rapidly and often attain a length of 16 to 20 feet, terminating with large umbellate inflorescences of drooping, bell-shaped flowers. Culture is of the easiest. It thrives luxuriantly if planted out in a well-drained border, in a compost of loam, peat and sand. When once established, little attention is needed beyond that of tying in the long twining shoots. It is a native of the Andes of Ecuador and New Granada, at an altitude of 8,000 to 10,000 feet, and is figured in the Bot. Mag. t. 5442. G. H. BANKS.

American Gooseberry Mildew.

GENERAL REMARKS AND INFORMATION.

It will probably now be conceded that, wherever American gooseberry mildew is prevalent, new methods of cultivation will to some extent be necessary in order to place the growing of gooseberries on a safe commercial footing. Where gooseberries are being grown under the shade of trees, so closely crowded that no spraying can be done, the consequent lack of ventilation and the delayed drying of the bushes and soil after rain, mists, or heavy dews, cause outbreaks of the mildew to assume epidemic proportions, and all such plantations are doomed.

The plantations likely to prove commercially successful in withstanding the mildew are those in which the following conditions of cultivation are found:—(1) An open situation. (2) Bushes not too closely planted. (3) Bushes of a variety that will not be injured by spraying. (4) Bushes with a natural unforced growth, such is obtained naturally in a good soil, or by well-balanced manuring. Excessive nitrogenous manuring, e.g., heavy dressings of organic manures, causes the bushes to produce sappy shoots which become virulently attacked by mildew. Experiments with the best commercial varieties should be undertaken to ascertain whether "spur" pruning, under which system the tipping of diseased shoots does not reduce the next season's crop, has advantages from the point of view of dealing with the disease; or whether the abundance of young shoots induced by "spur" pruning is a serious handicap. At any rate, such varieties as Cousins' Seedling should be pruned in such a way as to encourage an upward growth of the branches.

With regard to the direct methods that can be employed against the mildew, it seems clear that the early removal and destruction of the diseased shoots and berries is essential for success. Mildewed berries must be removed before the ripe winter-stage has formed on them. Spraying with lime-sulphur on the lines indicated below may prove to be a valuable help, but it is second in value to the removal of the shoots and berries. If through negligence the early removal of the affected shoots and berries is not carried out, and the soil thereby becomes infected with the perithecia, repeated sprayings may be powerless to save the crop or prevent outbreaks on an epidemic scale.

The lime-sulphur spray at full strength (1.01 sp. gr.) can be used during the early part of the season, April to June, and probably during July in most years, on the following varieties, without causing any serious injury, even when applied several times successively to the same bushes:—Whinham's Industry, Rifleman, Warrington, May Duke, Howard's Lancer, Gunner's Seedling, and Cousins' Seedling (Sandwich Yellow), and, when growing in a shaded position, Berry's Early and Lancashire Lad.

The following varieties are liable to be injured if the bushes are sprayed many times successively, or if they are situated in a sunny position:—Berry's Early, Freedom, Lancashire Lad, and Crown Bob, and it is therefore advisable to use "half-strength" lime-sulphur (1.005 sp. gr.) on these varieties, and to avoid spraying late in the season.

The varieties Yellow Rough (Golden Drop)

and Valentine's Seedling show so marked a susceptibility to injury that they cannot be sprayed.

In early seasons spraying should be commenced in mid-April, in plantations where the disease appeared in the previous season: in other circumstances, the first week in May is early enough; the spraying should be continued at intervals of about a fortnight until it interferes with the marketing of the fruit, when liver-of-sulphur solution or flowers-of-sulphur should be tried to stop the spread of mildew to the fruit. By this means it should in most cases be possible to grow a clean crop of berries. In cases, however, where the soil has been infected, it will probably be found that the berries become mildewed in spite of spraying.

Whilst spraying in May and June with lime-sulphur before the mildew is on the bushes, appears, with many varieties, to be a practicable means of preventing infection early in the season, and thus of saving the crop, it is certain that the spraying of good-sized gooseberry bushes throughout the growing season is not commercially advisable. Even if it were thus possible entirely to prevent infection (extremely doubtful, considering the constant growth of the shoots), the cost in labour of the repeated applications would be prohibitive. Neither lime-sulphur

nor any known spray kills the winter-stage of the mildew, and, as was observed repeatedly during 1913, outbreaks of mildew frequently occur in which the winter-stage suddenly appears almost simultaneously with the summer-stage. It is almost certain, therefore, that in every case of mildew in a plantation some "tipping" of diseased shoots must be done. After the crop has been gathered a good final spraying with lime-sulphur should be given. The mildew must then be allowed, in most cases, to attack the later growth of the shoots. By August a greater or less amount of disease will probably be found on the tips of the shoots; and this amount of disease must be expected until far more thorough and systematic methods of control are devised and generally adopted. With young and valuable plantations, close attention to the date of the first appearance of mildew, and repeated sprayings to cover all fresh growth, may render it possible to rear the bushes without having to "tip" them for disease to an extent that will

seriously injure their growth. This will be possible, however, only if the diseased tips of the shoots are collected and destroyed in good time each season.

Taking everything into consideration, tipping in August or early in September before the leaves have fallen is strongly to be recommended in all cases where anything like a severe attack of mildew has occurred. In some seasons, and with bushes of a certain age, no further growth of the shoots will take place after this tipping is done, and if all the mildew has been cut off, the bush is quite healthy again, since the disease is strictly external and confined to the young wood. If, as will be probable in some seasons, a slight fresh

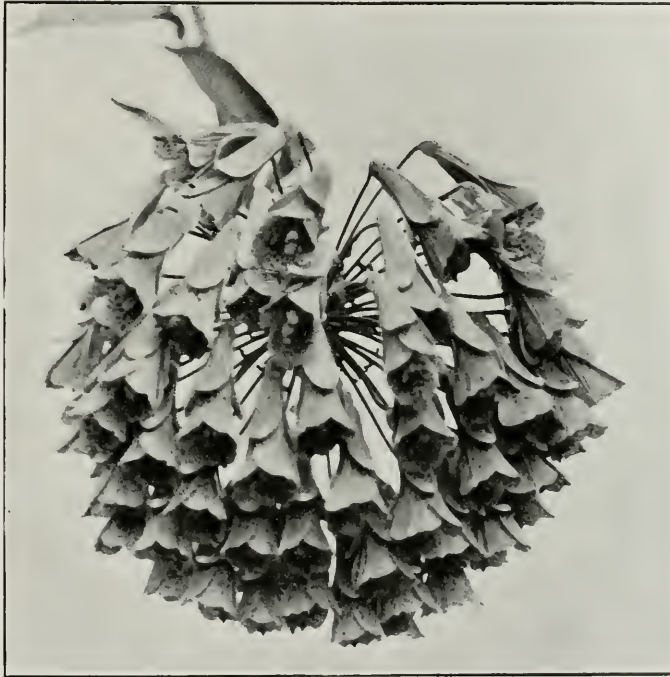
growth is made, and this becomes infected with mildew, the grower will still be in a better position, since there will certainly be much less disease to be removed before the perithecia fall to the ground, or even should they fall, owing to postponement of the second "tipping" through an unavoidable scarcity of labour, there will be much less severe infection of the soil than if no tipping at all were done until October or November. On many large fruit farms, as well as on small holdings, it is possible to find labour for the "tipping" of the shoots during the early part of August (before apple picking begins). It

should now be realised by the commercial fruit grower that it will pay better to go over infected gooseberry plantations in August and carefully remove and burn all diseased tips, than to wait until late autumn, when labour is again available. If tipping is done in August, the diseased leaves (with their winter-spores in the perithecia) will be prevented from falling to the ground, while the diseased shoots will be destroyed before the perithecia have begun to fall from them to any considerable extent.

With strict attention paid to the collection and destruction of all berries which show any winter-stage on them, to the tipping of the diseased shoots in August, and to spraying early in the season with lime-sulphur, it should be possible and commercially practicable to grow a crop of gooseberries free from mildew.

E. S. SALMON, F.L.S.

—From *The Journal of the Board of Agriculture*.



BOMAREA CALDASIANA.

R. H. S. Spring Show at Chelsea.

To convey an adequate description of the great Chelsea Show of the Royal Horticultural Society into the small space available is out of the question. At best one can only roughly outline the glorious display and briefly touch upon the main points of interest which claimed one's attention as they endeavoured to absorb the glories of the whole.

The chief feature which strikes the visitor to Chelsea is the vastness of the exhibition and the pleasing contrast which the ample grounds afford in comparison with the cramped space of the Inner Temple grounds of years gone by.

The "great tent" (of immense proportions) was this year given over to exhibits arranged on the ground level, with the exception of the two ends, which were given over entirely to huge banks of glorious Orchids most tastefully arranged.

Instead of the more orthodox parallel paths between lines of exhibits, ample stretches of turf had been arranged between the irregularly-shaped groups, thus leaving plenty of room for the myriads of visitors who flocked to enjoy the gorgeous display.

It was impossible to find a single exception to the high level of contributions which made the exhibition so great a success, and it seems invidious to single out for comment any one where all were so deserving of comment.

Two of the most brilliant colour patches were provided by (1) Messrs. J. Carter's splendid collection of greenhouse plants—a central mound of *Cinerarias*, surrounded by a pleasing design of *Stocks*, *Schizanthuses*, *Petunias*, *Clarkias*, *Gloxinias* and herbaceous *Calceolarias*; and (2) groups of fragrant, brilliantly-coloured *Azaleas* in a variety of tone.

As usual, Messrs. Veitch exhibited a unique collection of stove plants, prominent among which were two groups of splendidly grown *Caladiums*, ranging in colour from cream to deep red, the variety *Rose Laing* being especially beautiful.

William Paul & Sons put up a very fine display of *Roses*, the tall pillars being embowered with flower trusses.

In the centre of the tent Messrs. Sutton had a novel and attractive exhibit of greenhouse plants enclosed in an arcing of white lattice pillars, giving a pleasing sense of privacy, while inside this semi-seclusion were broad walks of grass between beds of *Salpiglossis*, *Schizanthus*, *Stocks*, *Primula obconica*, *Hybrids*, *Calceolarias* and *Cinerarias* in dazzling profusion.

Passing into the tent, to the east, under arches of trained *Fuchias*, so many fine collections crowded upon one's view that it was difficult to know which to examine first.

Sir Everard Hambro, of Hove's Place, Kent, contributed a magnificent exhibit of choice Alpines, where the silvery *Saxifrages* displayed their arching plumes of dainty flowers in the utmost profusion, while among the more showy examples such choice plants as *Erinacea pungens* in full flower, *Pentstemon Davidsonii*, *Asperula suberosa*, *Dianthus callizonus*, *Haberlea*, *Ferdinandia-Coburgi* and *Jankaea Heldreichi* dazzled the observer.

Here, too, were *Roses* grown by Alex. Dickson,

foremost among which were *Kil larney Brilliant*, a rich rose pink; *Mrs. Wemyss Quin*, yellow, and *Christie Mackellar*, apricot-salmon.

Leaving the tents for the open air one came upon a riotous display of formal gardens, banks of *Azaleas*, topiary work, garden furniture and statuary, and, finally, the galaxy of rock gardens.

Of the former Messrs. J. Carter exhibited a most pleasing design, composed of a rectangular pool, centred by spouting dolphins and surrounded by decorative balustrading draped with highly coloured *Clematis* in many varieties: adjoining the pool, but separated by the balustrading, were paved walks bordered with *Azaleas* and *Tulips*, while the corners were reserved for two attractively designed stone garden houses, sundial and dove-cote.

A somewhat similarly treated space was occupied by Messrs. Wallace, of Colchester, wherein a quiet Lily pool was overhung by *Wistarias*, while *Tulips* in yellow and mauve formed a border adjoining.

Messrs. Notcutt exhibited, under the shade of some fine old elms, a pretty paved *Azalea* garden, the brilliancy of the sweetly-scented flowers being intensified by the sombre colour of the dark trunks and branches, between which the bright May sunshine glinted.

Good examples of topiary work were shown by Messrs. Piper & Sons. They also showed some fine *Wistarias* in decorative vases upon their ornamental stone work and balustrading.

Probably the out-door rock gardens created more interest with the general public than any other portion of the exhibition, and certainly they justified examination again and again.

Undoubtedly, for artistic treatment and natural arrangement, Mr. Woods (of Boston Spar) easily came first. Here beautifully selected pieces of weathered mountain limestone were so tastefully and skilfully arranged that one almost fancied themselves "among the hills."

An especially delightful feature was a miniature trout stream leaping down between the moss and fern-garnished rocks, while *P. farinosa* and *Gentiana verna* spangled the grassy slopes, and glorious plumes of *Sax. Cotyledon* nodded from the rocky crevices, reminding one of happy bygone days in the mountains.

Clarence Elliott showed a very fine colony of *Ramondia pyrenaica* happily colonized between the rocks, while the large, deep-coloured form of *Campanula Allioni* spread its huge trumpets to the eye, and *Pentstemon Davidsonii* and *Oxalis enneaphylla* and *rosea* delighted the keen Alpinist.

The greatest number of treasures were perhaps to be found in the pretty Alpine garden of Maurice Pritchard, in fact one has learned to look instinctively for such in this direction, such plants as *Mimulus radicans* and *Schizocodon* being especially noticeable.

Messrs. Wallace & Co. put up a very attractive rock garden exhibit, using particularly good stone, in the crannies of which *Sax. cochlearis* or minor gleamed, while in broader stretches were *Onosmos*, *Camp. Stevensii nana*, *Viola pedata*, *Sax. Cotyledon* and *Dr. Ramsey* and *Ed. serp. major*.

Altogether the Council of the Royal Horticultural Society are to be congratulated upon the immense success of the exhibition, which, thanks largely to the glorious weather, was attended by a vast number of visitors, who expressed their surprise and delight in unmeasured terms.

REGINALD A. MALBY, F.R.P.S., F.R.H.S.

FLORAL COMMITTEE'S AWARDS.

First-class Certificate.—*Adiantum grossum* from Messrs. May, Upper Edmonton.

Award of Merit.—*Pittosporum Silver Queen*. Mr. J. Coey, Newcastle, Co. Down; *Calceolaria Stewartii*. Messrs. Veitch, Chelsea; *Adiantum gloriosum Lemkesii*. Messrs. Lemkes & Sons, Alphen, Holland; *Campanula tomentosa*. "Maud Landale." Miss Maud Landale, Limsfield; *Begonia Lady Carew*. Messrs. Blackmore & Langdon, Bath; *Primula secundiflora*. Messrs. Bees, Liverpool; *Oxalis adenophylla*. Messrs. Bees, Liverpool, and Mr. G. Reuthe, Keston; *Platycodon Cordreya*. Messrs. May, Upper Edmonton; *Pteris flabellata plumosa*. Messrs. May, Upper Edmonton; *Pinguicula Reuteriana*. Mr. G. Reuthe, Keston; *Carnation "Scarlet Carola"*. Mr. C. Engelman, Saffron Walden; *Telopea speciosissima "Waratah"*. Rev. A. T. Boscaun, Ludgvan, Rectory, Long Rock, Cornwall (a Cultural Commendation was also awarded to the Exhibitor); *Iris Gold Crest*. W. R. Dykes, Charter House Godalming; *Clematis "Queen Mary"*. Messrs. Jackman, Woking.

ORCHID
COMMITTEE
AWARDS.

First-class Certificate.—*Miltonia*, "The Baroness." Armstrong & Brown, Tunbridge Wells; *Miltonia*, "J. Gurney Fowler." Armstrong & Brown, Tunbridge Wells; *Queen Alexandrina*. Charlesworth & Co., Haywards Heath; *Miltonia Vexillaria Solom*. Sauder & Sons, St. Albans; *Miltonia Vexillaria*. "Laelia Sander." Sander & Sons, St. Albans; *Laeliocattleya Medina Excelsior*. Flory & Black, Slough; *Laeliocattleya Haroldiana*. Bronze King, S. Low & Co., Enfield; *Miltonia "Princess Victoria Alexandra"*. Mons. C. Vuylsteke, Ghent; *Odontioda Bradshawie "Perfection"*. J. & A. McBean, Cooksbridge.

Awards of Merit.—*Brassocattleya Shilliana*. Armstrong & Brown, Tunbridge Wells; *Odontoglossum Chanticleer*. Armstrong & Brown, Tunbridge Wells; *Laeliocattleya Fascinator-Mossiae "Purity"*. Charlesworth & Co., Haywards Heath; *Odontoglossum Dusky Monarch*. Charlesworth & Co., Haywards Heath; *Laeliocattleya Sunstar*. Charlesworth & Co., Haywards Heath; *Odontonia Roger Sander*. Sander & Sons, St. Albans; *Cattleya magali Sander*. Sander & Sons, St. Albans; *Cymbidium Venus*. Stuart, Low & Co.,

Enfield; *Miltonia "Adonis"*. Mons. C. Vuylsteke, Ghent; *Odontioda "Prince de Galles"*. Mons. C. Vuylsteke, Ghent.

MESSRS WEBB & SONS, the King's Seedsmen, Wordsley Stourbridge, have scored a great success by winning a Gold Medal (the highest award) at the Royal Horticultural Society's Show at Chelsea (May 19-21).

Their exhibit of Flowering Plants from Seeds consisted of the following:—*Calceolarias*, *Cinerarias*, *Schizanthus*, *Begonias*, *Gloxinias*, *Primulas*, *Streptocarpus*, *Stocks*, *Nemesias*, *Petunias*, *Clarkias*, &c.

The display was arranged in a strikingly attractive style, the huge mounds of

beautiful blooms, in an endless variety of dazzling colours, creating a magnificent effect, and excited the admiration of the many thousands of visitors. Messrs. Webb are to be congratulated on their splendid achievement.



"Not a tree,

A plant, a leaf, a blossom but contains
A folio volume. We may read and read,
And read again, and still find something new,
Something to please, and something to instruct."

—*Hurdis*.



Photo by]

KILLARNEY BRILLIANT

Pure deep rosy carmine, a sport from Killarney, of higher colour and more full flowers, shown by Messrs. Alex. Dickson at the Chelsea Show, May 19th.

[R. A. Malby

Reviews.

Flowering Plants of the Riviera.*

MANY people leave our British shores to escape the fogs and sunless weather of winter and to enjoy the sunny weather and mild climate of the winter along the Mediterranean coast. To these this book will be a useful companion if they have any taste for botany or love of plants, and those interested in hardy flowers and Alpine plants will find many of their favourites described and figured.

The wild vegetation of the Riviera is seen at its best in late spring, and a characteristic point is that the majority of trees and shrubs are ever-green, and many of the smaller plants have silvery leaves covered with hairs to assist in checking evaporation during the hot summer weather.

Mr. Stuart Thompson is already known as the author of "Alpine Plants of Europe," and in the book under notice he gives a descriptive account of 1,800 of the more interesting species found in the Riviera, some of which are illustrated by coloured plates, and there are reproductions of photos by the author.

There is a chapter on "Collecting and Preserving Plants," a short glossary of botanical terms, while A. G. Tansley, M.A., gives an introduction to the Plant Associations of the Riviera.

* "Flowering Plants of the Riviera." By H. Stuart Thompson, F.L.S. Published by Longmans, Green & Co., London. Price, 10s. 6d. net.

Commercial Orchid Growing.*

THIS book deals with Orchids for the cut flower trade. The author recommends market florists to devote at least one house to cultivating a batch of some popular kind, such as *Cattleya labiata*, and advises growers not to be scared by erroneous impressions that these beautiful plants are very difficult to grow. The work is divided into fifteen chapters giving the most suitable kinds to grow, their proper treatment, and also a monthly calendar of operations.

Houses for *Cypripediums*, *Cattleyas*, &c., are described, giving their proper site and construction, and much more practical advice is given on this phase of Orchid culture, which is likely to become of increasing importance.

* "Commercial Orchid Growing," by C. Alwyn Harrison, F.R.H.S. Pp. 132. Illustrated. Price, 2s. The Lockwood Press, 1 Mitre Court, Fleet Street, London

The Week-end Gardener.*

In the preface Mr. Farthing explains the title of his book. He realises that gardening requires daily effort and attention, but he endeavours to cater for that vast and increasing army of amateurs who find most of their leisure hours towards the week-ends. Luckily, the interest and pleasure derived from gardening does not in the least depend upon the size of the garden, for one may often meet a keen and enthusiastic gardener in a cottage or a villa garden as well as in a large

demesne. In 1911 Mr. Farthing published, under the title "Saturday in my Garden," a series of articles which had appeared in the *Daily Express*, and the "Week-end Gardener," is supplementary to his first book.

Starting with January, the book is like a large calendar of gardening for the week-ends, laying out work for all the year round. It runs to 446 pages, and is abundantly illustrated with plates and diagrams useful to the novice.

Most of the popular plants, such as Dahlias, Chrysanthemums, Roses, Carnations, Tomatoes, &c., receive special notes, while bedding plants, hardy plants, and annuals all come in for notice.

In the book there are a few mistakes; for instance, where *Tropæolum polyphyllum* is described as a climber; *Geranium Endressii* is twice described with crimson flowers, whereas they are a clear pink; and in the chapter on Wall Gardening *Primula denticulata* and *sikkimensis* are recommended for sunny walls; in reality, to grow them well, they need a cool, moist soil.

Taken altogether, the book is one which will be of great value to many amateurs and novices, and excellent value for the money. F. B.

* "The Week-end Gardener." By F. Hadfield Farthing. Price 3s. 6d. nett. Published by Grant Richards, 8 South Building, High Holborn, London.

Notes.

GARDENING FOR AMATEURS, edited by H. H. Thomas, to be completed in twenty-four fortnightly parts. Part 6 deals with Roses, and contains numerous and beautiful illustrations of single blooms of leading varieties, and also artistic gardens with arches, pergolas and roses in a border. The articles are sound, and treat of the culture of the Rose for decorating and for exhibition, while general notes tell the amateur what work should be done in May.

THE April number of the Journal of the Royal Horticultural Society contains many good and useful articles, with a photo of the late Sir Trevor Lawrence, who for so long and so worthily held the office of President of the Society. Some of the articles in this number are—"The Cooking of Vegetables," by C. H. Senn; "Autumn Border Flowers," by B. Crisp; "Difficulties in Flower Show Schedules," by Rev. W. Wilks; "The History and Development of the Strawberry," by E. A. Bunyard, &c.

SUCCESSFUL FOX FARMING.—The Prince Edward Island Government received nearly £8,000 in fox taxes during the past year, and the present outlay upon ranches there is estimated at over \$2,400,000, the farmers of Prince Edward Island having found it more profitable to grow foxes than to grow wheat, and the industry has proved so attractive that efforts are being made to extend it to other parts of the Dominion.

CANADIAN FISH FOR BRITISH MARKET.—The first shipment of frozen halibut from British Columbia has arrived at Grimsby in splendid condition. The consignment, which consisted of 11 tons, was sent from the British Columbia Fisheries, of which Sir George Doughty, M.P. for Grimsby, is Chairman. It is intended to have regular consignments despatched in future, and it is anticipated that salmon will be similarly imported at an early date.

The Month's Work.

The Flower Garden.

By WM. G. WADGE, Gardener to Lady O'Neill,
Shane's Castle, Antrim.

THE first half of May being so cold and stormy, planting may be in arrears. It should be finished off with as much expedition as possible now. Our summers are so short that it is advisable to get everything intended for bedding into the ground at the earliest date, consistent with safety from frost. Nothing will be gained by deferring longer the planting of any subject on the score of tenderness, and plants kept unduly long in pots and boxes deteriorate. Pot up a few plants in rich soil, of all things used in the bedding, as a reserve to be called on should blanks occur in the beds from any cause. If an immediate effect is not essential, pinch off all flower buds for a few weeks; the after-results will repay this sacrifice. Allow no seed pods to form on *Violas* at any time. On light soils, these, also *Calceolarias* and *Begonias*, should be given a mulch of cocoanut fibre, refuse or bog mould.

Rhododendrons and *Azaleas*, as they pass out of flower, will put forth more vigorous growth if all seed vessels are picked off. It is not always practicable with large specimens, but all young or recently planted bushes, or any that are weakly, should be so treated. At the same time shorten any unduly strong shoots that would spoil the symmetry of the plant. Any suckers springing from the stock should also be removed.

PYRETHRUMS AND HERBACEOUS PEONIAS.—If plants of these have grown too large or it is desirable to increase the stock, immediately after flowering is a good time to lift and divide the plants. Choose a dull day, and keep the divisions watered and mulched after replanting.

SWEET WILLIAMS (*Dianthus barbatus*)—These make charming patches of colour at this season, and are the more appreciated as it is between the seasons with the flower beds proper. They can now be had in distinct colours. *Pink Beauty* and *Scarlet Beauty* are very bright and showy. Seeds sown on a border now will furnish plants for flowering in twelve months' time.

AQUILEGIAS are also blooming now. The hybrids are very beautiful. The chaste flowers of delicate colours, borne on long thin stems, are very useful for house and table decorations. It is necessary to sow the seeds of *Aquilegia* in boxes in March to flower the following year.

CLIMBING PLANTS need attention. They grow rapidly now. If neglected, the shoots get entangled or broken with winds. *Clematis* shoots are very brittle; and cannot be loosed if allowed to grow together without breaking many of them. The basal growths of *Climbing Roses* must be secured. Avoid tying Climbers too closely at this time. It is not necessary to make many ties; just an occasional loose tie is sufficient.

HERBACEOUS BORDERS.—If dry weather sets in many subjects will need watering. Attend to this towards evening. Where the soil is loose and porous, tread it firm round the plants before watering. If weak manure water is used, much better results will be seen than from clear water. Avoid watering in dribbles. If it is not practicable to thoroughly water the whole border, it is wiser to soak just those plants that are known to soon

suffer from drought. Mulch the borders with short manure if possible; if not, keep the surface soil stirred with the hoe. This, if persisted in, will make a mulch of fine soil, and weeds will be kept down by the same operation. See that all plants requiring support are given it in good time. Restrict any strong growing plants that would encroach on others less rampant.

CARNATIONS need staking and tying. Reduce the number of flower buds on each stem. When finished, give the beds a dusting of soot and hoe it in.

SWEET PEAS.—These planted early in April have made good progress. Thin out the growths when they have attained a height of 18 inches. If intended for show purposes, train the main stems 4 inches apart, and rigidly pinch out all laterals. For garden decoration, more freedom may be given, but even here it is not advisable to allow crowding. Pick off all flowers as soon as they are fully out, or the plants will be robbed of so much energy spent in forming seeds.

The Fruit Garden.

By PETER BROCK, Horticultural Instructor
for Co. Fermanagh.

THE prospect of a bumper crop of apples has seldom looked more rosy than at present. The opening of the blossom being about eight days later than last year, found it in a safer stage when the cutting wind storm, accompanied by showers of hail, came along on the same date. 7th and 8th of May this year. *Bramley*, *Grenadier* and *Lanc's Prince Albert* have been fully open since the 12th, and with the bright sunshine the bees have had a splendid opportunity of distributing the pollen. *Bismarck* and *Beauty of Bath* opened a week earlier, and in several places I notice some of the blossom has been injured by hail.

It is at this season, and in fact all through the growing period, a matter of the first importance to keep the surface of the soil around and between fruit trees and bushes in a loose, powdery condition by repeatedly stirring the surface with the hoe. The advantage of this is twofold—first, it allows a free passage of air into the soil to stimulate root-action; and secondly, it acts as a mulch or covering to prevent loss of moisture by evaporation. The benefit of surface cultivation and soil aëration is not, as a rule, sufficiently recognised by fruit growers.

INSECT PESTS.—Continue to keep a sharp look out for all kinds of insect enemies, and be prepared to deal with them promptly.

WASPS.—The queens of this pest are unusually plentiful this year, and will, if the season continues favourable for them, cause considerable loss and annoyance to fruit growers in autumn. Their favourite feeding ground at this season is on the *Cotoneasters*, where they may be found in the forenoon and knocked down, or if it is done smartly pinch them between the finger and thumb. I have caught scores in this way on *Cotoneasters*, and have never yet been stung. A small premium on the queens is a good way of mitigating the nuisance we may expect later on.

THINNING FRUIT.—Quality is of more importance than quantity. Overtaxing trees in years of great plenty is a common mistake. Better paying crops are obtained by rational thinning to what the trees can mature without affecting

their vitality, as trees that are never over-cropped seldom fail to produce fair crops of fruit. No fixed rule can be laid down as to how much fruit any particular tree should carry, as so much depends on kinds and varieties and the conditions under which the trees are grown. Aim at the production of select and first-grade fruit without overtaxing the trees. A partial thinning of apples and pears should take place when the fruit is fully the size of a hazle nut, and the final thinning of the larger sorts when they are about the size of small walnuts. At this stage the most perfectly formed and best placed fruit can be selected to remain to mature. Plums that have set an overcrop should be partially thinned with a sharp-pointed scissors, and the final thinning when the most certain stoning fruits can be selected to remain. Peaches and apricots will also require attention in thinning.

PINCHING AND SUMMER PRUNING.—In skilled hands who know the vigour of the trees, the crop they may be carrying, and the results to be aimed at, good results may be obtained by the timely nipping the top off a shoot, leaving live or six leaves. Any wrong placed shoot that may not be required to form part of the tree may by pinching be induced to form a fruit spur. Trained plums have a tendency to greater vigour of growth at the extremities than at the bottom or centre of the tree. This tendency should be checked by pinching the strongest growths in order to induce a better balance of growth in all parts of the trees.

STRAWBERRIES.—Where early and strong runners are required they should be laid or fixed early this month, choosing, if possible, those from young and vigorous plantations formed last August. Such plantations afford very choice early dessert fruit the first year after planting, and at the same time afford the best source for providing early and strong runners for future plantations. To secure runners from plantations that may be carrying a crop the first year, loosen a narrow strip with a fork between every alternate row, draw the best of the runners on to it from each side and fix them on to the prepared ground by laying a small stone on each. In very dry weather a mixture of clay and fresh cow manure made to the consistency of putty, and a ball of it placed near the head of each runner forms the best fixing for producing strong runners fit to plant permanently in August.

The Vegetable Garden.

By ARTHUR HORTON, Gardener to Colonel Claude Cane, St. Wolstan's, Celbridge.

CELERY.—The main planting of celery should be made as early in the month as possible in prepared trenches, as advised in last month's notes. Thoroughly water the plants some time previous to planting, and lift with as good a ball as possible. It is most important that the soil should be made firm about the roots, ten or twelve inches is the usual distance allowed between the plants. Celery is naturally a moisture-loving plant, consequently it is almost impossible to overwater it, provided the site chosen for the trenches is well drained, naturally or otherwise. If the weather is in any way hot or dry after planting a good overhead sprinkling of water through a medium-sized rose morning and evening until the plants get established will be very beneficial. Celery fly and slugs are the two

worse enemies to be contended with in the growing of this vegetable: if at all numerous and left unchecked either will quickly ruin the whole crop. The best preventive I know for warding off the celery fly is occasional sprayings of paraffin emulsion, the smell being objectionable to most insects. Frequent dustings of lime and soot are probably the most effective deterrent against the ravages of slugs.

VEGETABLE MARROWS AND GOURDS.—If not already accomplished these should be planted out without delay. Possibly no other vegetable gives such a good return with so little trouble as vegetable marrows; their requirements are few and management simple, any odd corner will suit them provided they get a fair amount of sun. An ideal position is on the top of an old rubbish leaf-mould or manure heap. About one barrow load of manure and the same quantity of soil to each plant will be found quite sufficient. Copious supplies of water should be given all through the growing season; if allowed to suffer at any time for want of water mildew is almost sure to set in, and the result will be disastrous.

LEEKS.—Sown outside and intended for winter and spring use may be planted as soon as they are large enough to handle. One of the simplest and best methods is to draw fairly deep lines with a draw hoe, allowing two feet between each line. Afterwards bore holes about a foot in depth and one foot apart; drop the young plant to the bottom of the hole, merely put enough soil in to cover the roots; more soil will be added when hoeing between the plants. A much longer blanch is obtained by growing them in this manner than is possible if the holes are filled up at the time of planting. In gardens where space is limited it is a good practice to plant leeks on ground previously occupied by early potatoes, although somewhat late in the season if given a fair chance excellent crops can be depended on, as leeks generally continue to grow all through the winter.

BRASSICAS.—Good breadths of cabbage, cauliflower, borecole, Brussel sprouts and broccoli will require planting as early in the month as convenient. The soil should be made fairly firm, especially for broccoli; the plants will be much more hardy, consequently they will have a better chance of pulling through a severe winter than if grown on loose, deeply cultivated rich soil. Care must be taken not to plant too thick. In no case should they be less than two feet six inches between the rows and about the same distance from plant to plant.

PEAS.—Continue sowing peas at intervals until the middle of the month. As a rule about the 20th of June is a good time for putting in the last sowing; peas seldom come to maturity if sown much after this date. The ground should be thoroughly prepared and care taken not to sow too thickly. As there are so many good varieties on the market it is hard to say which is the best for late use. Antocrat and Gladstone are two excellent varieties and well worth growing.

GENERAL REMARKS.—Make regular sowings of French beans, carrots, turnips, spinach, lettuce, endive, radishes, mustard and cress. Thin and transplant lettuce, fork and well break up the soil between the rows of potatoes previous to mounding up the drills. The staking of beans and peas will also need attention. It is also of much importance to keep the ground well stirred between all growing crops.

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A MONTHLY JOURNAL DEVOTED TO THE
ADVANCEMENT OF HORTICULTURE AND
ARBORICULTURE IN IRELAND

JULY
1914

EDITED BY C. F. BALL.

Rose Fragrance.

By REV. JOSEPH H. PEMBERTON.

"MESSRS. CLAY have presented to the Council a silver-gilt cup of the value of £75 for annual competition (open to all) at the Holland House Show, the object being to endeavour to obtain a race of Roses of both good form and colour, but above all else, possessing the true, old

florist's flower—was due to its fragrance. It would be quite easy to insert quotations from the poets in praise of its fragrance, but this is quite unnecessary; we all know it. But what is not so generally known is the variety in the perfume, and the bold statement that there is



Photo by]

[Miss A. A. Lane

AN OLD SWEET-SCENTED ROSE AND TREE LUPIN AT TANKERSLEY COTTAGE,
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genuine Rose scent, such as may be found in the old Cabbage or Provence Rose, in 'General Jacqueminot,' 'Marie Maumann,' 'Duke of Wellington,' 'General McArthur,' &c. The distinctive scent known as 'Tea Rose' is not, for the purpose of this competition, to be accounted as the true old Rose scent." The foregoing is an extract from the "Book of Schedules" issued by the Royal Horticultural Society, and it has much that commends it to all rose-lovers. The popularity of the Rose in days of long ago—days before it became a

"the true old rose scent" calls for a few observations.

All wild Roses are fragrant—distinct and refined in some, powerful and decided in others, and as variable as the species are in habit and form of blossom—a delicious fragrance, such as is perceived in no other flower which charms the sense of smell. *Rosa canina* has its own perfume, so has *Rosa arvensis*, and both grow side by side in the same hedgerow. Do you know the difference? If not, now is the time to test it. Or perhaps you know, and can dis-

tinguish between the two with your eyes shut. You may prefer the perfume of *R. canina*, and that of *R. arvensis* may not appeal to you at all. Perhaps this is owing to lack of exercise of the sense of smell; it is not alert. Bees and kindred insects are guided by the sense of smell; in them it is acute, and they infinitely prefer *R. arvensis* to *R. canina*. Doubtless you have noticed that, and you have also observed that the musk perfume of the Rose is the most attractive of all where bees are concerned. "The true old Rose scent" is nothing to them, as long as there is a Musk Rose which they can visit. Bees will crowd around and hustle in and out of the small blossoms of *R. moschata* and *R. brunonis*, neglecting to visit other Roses near by, notwithstanding their strong damask and seductive tea perfume.

Now, although all wild Roses possess fragrance, some appear to us to have more, or stronger, perfume than others, and consequently they are better known. The most noticeable of all are four: (1) The Musk Perfume, exemplified in the species *R. moschata*, also in *moschata nivea*, *brunonis*, and their hybrids, the dwarf perpetual flower cluster Roses. (2) The Damask Perfume, derived from *R. damascena*, the Provence and Gallica, of which the hybrid perpetual is the offspring. As the species is a red Rose, the prevailing colour among hybrid perpetuals is red, and it is in these red Roses that the damask perfume is the strongest. (3) The Tea Perfume, obtained in the first instance from *R. indica odorata*, and carried on in the true tea-like *Devoniensis* and *Madame Bravy*. (4) The perfume of *R. lutea* and its progeny, Persian yellow and others. As the species is yellow, so its perpetual flowering hybrids, the new *Per-netiana* race, are more or less yellow. The perfume here is a sort of fruity apricot, banana-like odour, and the more decided is the yellow, the stronger is this fruity perfume. These four we may term pure perfumes, because they are the same as in each of the four species. But there are also blends, like the blends in tea and tobacco, superior, in a degree, to the pure perfume; the blend of Musk and Tea is one, the blend of Musk and Damask is another. Apparently the Tea and Damask will not blend; the one seems to counteract the other, and both are held up. So when raisers were striving to obtain more freedom of flowering by crossing the hybrid perpetual with the Tea Rose, the progeny on the whole lacked perfume. It is true they obtained free-flowering hybrid teas, but these were deficient in fragrance.

We will now attempt to classify the fragrance of the Rose (it is only an attempt), indicating at

the same time a few of the best scented varieties in each respective class.

CLASSIFICATION OF ROSE FRAGRANCE.

Perfume	Variety	Habit
I. Pure Musk	<i>R. moschata</i>	Not perpetual
	<i>R. moschata nivea</i>	Not perpetual
	<i>R. brunonis</i>	Not perpetual
	The Garland	Not perpetual
	Seagull	Not perpetual
	Moonlight	Perpetual
	<i>Daphne</i>	Perpetual
II. Pure Damask	York and Lancaster	Not perpetual
	D. (the true)	
	Tuscany, D.	Not perpetual
	Marie Baumann, H.P.	Perpetual
	General Jacqueminot	Perpetual
	H.P.	
	Senateur Vaisse, H.P.	Perpetual
	Souvenir de Pierre	Not perpetual
	Dupuy D.	
	Zéphirine Drouhin, B.	Perpetual
III. Pure Tea	Madame Bravy, T.	Perpetual
	Devoniensis, T.	Perpetual
	Gloire de Dijon, T.	Perpetual
IV. <i>R. lutea</i>	Persian Yellow	Not perpetual
	Austrian Yellow	Not perpetual
	Rayon d'Or	Perpetual
	Juliet	Perpetual
V. Blend of Musk and Tea	Lamarque, N.	Not perpetual
	Maréchal Niel, N.	Perpetual
VI. Blend of Musk and Damask	La France	Perpetual
	Mrs. A. E. Coxhead	Perpetual
	Edward Mawley	Perpetual
	President Vignet	Perpetual

With reference to Division VI., the perfume of these Roses is not pure Damask—not "the true old Rose scent"—there is something else as well; more accentuated, perhaps, in *La France* than in the others; it appears to be the Musk. Judging from their habit of growth and length of flowering period, the last three varieties have a common ancestor, and they, together with their ancestor, have doubtless a strain of *R. moschata* in their constitution.

Of all the various perfumes, that of the Damask is the most pronounced, whilst that of the Musk is the most delicate. The former is heavy and strong, and is popular. But bear in mind this, "the true old Rose scent" that the R.H.S. are now asking for comes from a stock that is fast disappearing, the Hybrid Perpetual. Now, the thoroughbred Hybrid Perpetual is not a good autumn-flowering Rose. Indeed, the writer cannot for the moment recall the name

of any Hybrid Perpetual with "the true old Rose scent" that is good in September. Perhaps some one will suggest Hugh Dickson. But to call a variety a Hybrid Perpetual does not make it one, and besides Hugh does not possess the pure Damask perfume; it goes one better than that; its fragrance is a blend, a mixture.

There are some, however, who seek for the Damask perfume in every Rose; if it is absent they say the Rose has no fragrance. A few years ago a new seedling was exhibited at one of the fortnightly shows of the Royal Horticultural Society, and obtained an award of merit. A leading member of the Floral Committee met the exhibitor in the street, and remarked, "Young man, your Rose has received an award of merit. To tell you truth I don't think much of it; it's got no smell." Nevertheless the bees at home were revelling in its pure Musk perfume, to the neglect of all other Roses in its vicinity.

Therefore one would urge on all who seek for fragrance in the rose: cultivate, enlarge your sense of smell, if you have not already done so! Time was when we rejected all Roses that were not so-called "exhibition" varieties. Our vision was restricted. We could see no beauty in Aimée Vibert, Celine Forestier, Maiden's Blush, and such like. We have recovered our sight, our eyes have been relieved of cataract, and we can once more see beauty in a Rose even if its symmetry is imperfect, and it is lacking in many petals. Now go on and recover the sense of smell, or at least widen it. Let it embrace and appreciate not only "the true old Rose scent," delicious as it is, but all the other perfumes yielded by the Queen of Flowers.

Kilmacurragh.

IN County Wicklow are to be found many gardens of great beauty, and Kilmacurragh, favoured by a climate where few degrees of frost are registered, is second to none

for unique specimens of trees and shrubs. The estate has for a long time been noted for fine trees; in front of the house is a large skeleton of an oak, which must have been a fine tree many years ago, and from the records kept some huge sycamores, now having a girth of 16 feet at 3 feet from the ground, were supposed to be the finest specimens in the county about the year 1794. In a marshy spot a group of fine old alders are so gnarled, twisted and lichen-covered that in their leafless winter state they are often mistaken for oaks. In another place the Crocus has been naturalised in the grass and seeds itself; in spring it covers a large stretch of ground with a beautiful purple mantle of flowers.

The present collection of rare trees and shrubs was largely formed by the late Mr. Thomas Acton, a very keen plant lover, and the

estate has descended, a few years ago, to his nephew, Captain Acton, who has quickly developed a keen and appreciative love of plants.

Many of the old forest trees are thickly coated with lichen, showing how cool and moist is the atmosphere; the annual rainfall is about 40 to 45 inches.

The Himalayan and other Rhododendrons thrive wonderfully under these conditions with a good deep soil, and are strongly represented.



Photo by]

[W. N. Allen

ERICA AUSTRALIS AT KILMACURRAGH.

Some of the more tender species are planted in clearings in the wood, where they get shelter from strong winds.

Rhododendron arboreum and its hybrids line the sides of a drive, and in April they form a bank of scarlet flowers 20 to 30 feet high.

R. Campbelliae is an extremely rare species, and is 25 feet high.

R. Falconeri is a marvellous bush, 20 feet high, and as much through, and this year has borne about 500 heads of flowers.

R. triflorum and *campylocarpum* measure 10 to 12 feet.

R. grande or *argenteum* is 18 feet, and *R. eximium* is making a strong bush. *Rhododendron Kingianum* is still small, but doing well; while *R. Keysii* and the rare Chinese *R. lacteum* are over 10 feet. *R. barbatum* is 20 feet high.

In early April an extremely fine form of *R. barbatum* is a picture, so dazzling and brilliant are the crimson flowers; this form is known as the Menabilly variety; the trusses are larger and the flowers open just as those of the type fade. A hybrid from *R. arboreum* crossed with *R. campanulatum*, raised at Glasnevin, and named Thomas Acton, also flowers in early April; the leaves are intermediate between the two parents, and the flowers are white-spotted with crimson.

Other rare species of *Rhododendrons* at Kilmacurragh are *R. Roylei*, *Fordii*, *lepidotum* and *lanatum*.

Himalayan Conifers are represented by fine specimens of *Abies Pindrow* and *Webbiana* nearly 50 feet high, while *Tsuga Brunoniana* is nearly 40 feet high, and is the rarest of the hemlock spruces, with beautiful glaucous branches sweeping the ground; unfortunately it is scarcely hardy in County Dublin. *Pieris* (*Andromeda*) *formosa* is also tender in most localities, but here is 15 feet high, and bears freely its drooping white flowers like sprays of Lily of the Valley.

Magnolia Campbellii was planted in 1876 on a wall, which it has long since overtopped, and is now a tree 35 feet high. It is the finest of all *Magnolias*, rather tender, and takes many years before flowering, but it is well worth the waiting, for the flowers are a lovely shade of pink, 10 inches across, and sweetly scented; a tree bearing a number of flowers in April was a really beautiful sight. Our illustration does not do justice to this beautiful flower, for its distinctive beauty lies in the soft colour.

CHILIAN TREES AND SHRUBS.—Irish gardens in favoured localities are particularly suited to these, and Kilmacurragh possesses two which are probably the finest specimens in the United Kingdom. Mr. Watson, the Curator of Kew, when first visiting this garden in June, 1905, seeing a specimen of *Tricuspida lanceolata*

18 feet high and 10 feet through, with branches weighed down by the red flowers, exclaimed: "I never before saw such a plant." Again in June it is well worth going all the way to see *Embothrium coccineum* covered by brilliant scarlet flowers, 40 feet high, and with a trunk 18 inches thick, and sending up suckers 6 or 7 yards away.

Another extremely rare tree is *Libocedrus tetragona* represented by a fine specimen of fastigiate habit 20 feet high, while *Libocedrus chilensis* is 30 feet high.

Other interesting Conifers from Chili are *Podocarpus nubigenus*, 25 feet high; *P. chilina*, 25 feet; *Fitzroya patagonica*, 25 feet and the same in diameter; and *Prumnopitys elegans*, 30 feet.

A specimen of *Drimys Winteri*, 35 feet high, was in flower in April; while *Azara microphylla*, 30 feet, scents the air around with vanilla perfume from tiny yellow flowers, produced early in February.

Eugenia apiculata (*Myrtus Luma*), 25 feet high, produces its myrtle-like flowers in late summer. *Laurelia serrata*, 25 feet high, is another scarce and rather tender evergreen tree. In the southern parts of Chili it is known as the Huanhuan tree, and is prized for its timber. In April it bears a multitude of small yellowish flowers, which are very fragrant.

Two evergreen climbers belonging to the *Berberis* family are rambling on a wall; these are the showy red-flowered *Berberidopsis corallina*, and the handsome foliaged *Lardizabala bitemata*.

NEW ZEALAND PLANTS.—In April one of the most remarkable plants was a bush of *Fuchsia excorticata*, 16 feet high, with the bark peeling off in long strips from the older stems, the quaint flowers—a mixture of blue and red—spring in clusters from both old and young stems. There is a bush of *Senecio Grayi*—and such a bush! 15 feet through and 5 feet high—which is just covered by a mass of yellow flowers in June.

Griselinia littoralis, a useful evergreen for the seaside, here grows 20 feet high.

Pittosporum Buchananii is a fine bush of 15 feet, while other kinds, like the small-leaved *P. Mayi*, are making pretty evergreens.

Olearia macrodonta makes a fine bush, and more of this family might be planted with advantage.

Tasmania is represented by many beautiful specimens of the *Arthrotaxis*, members of the Conifer tribe not often grown because they are not generally hardy, but here they form perfect erect pyramids uninjured by frost. *Arthrotaxis cupressoides* is 20 feet; *A. laxifolia* is 36 feet, with a trunk 15 inches in diameter, and *A. selaginoides* is also 25 feet high.

AUSTRALIA.—Two evergreen beeches from this country are probably the finest trees of their kind in the British Isles.

Fagus Cunninghami is 40 feet high, with a trunk 18 inches in diameter; the leaves are tiny, and give the tree a light and graceful appearance. *Fagus Moorei* is 25 feet high, a very rare species, having leaves larger than most of its relatives.

Swammerdamia Antennaria is an evergreen bush belonging to the Compositæ, and is 10 feet by 15 feet, and seedlings from it are appearing on a wall near by. The Australian *Olearia*

Aster batangensis.

A MICHAELMAS DAISY flowering in May and June looks rather out of season, but such is the case with the above-named plant. This *Aster* forms a compact shrub about 1 foot high, and literally smothers itself with bloom. The flowers are of quite the same appearance as a Michaelmas Daisy, of a bright purple, quite $1\frac{1}{2}$ inches across, the petals being much longer and narrower than usual in the genus. To Messrs. Bees, Ltd., we owe the introduction of this useful rock plant, and, like the majority of the newer Chinese plants, it has proved itself quite hardy at Glasnevin.



MAGNOLIA CAMPBELLII AT KILMACURRAGH.

Flowers a beautiful soft pink 10 inches across.

stellulata covers itself with white daisy-like flowers as in many other Irish gardens.

From Mexico come two rare Conifers—*Cupressus lusitanica*, a beautiful spreading tree, 40 feet high, and one of the rarest of the silver firs; *Abies religiosa*, with a trunk 2 feet in diameter, but some years ago a storm snapped the trunk and lessened its height.

Notelaea excelsa belongs to the Olive family, and is sometimes seen as an evergreen shrub and called an *Olea*, but here it is a tree 35 feet or more in height.

Many more fine trees and shrubs might be mentioned, but enough has been written to show that Kilmacurragh has a floral and sylvan wealth far beyond most gardens, and is particularly rich in *Rhododendrons*, rare and tender Conifers.

B.

Roscoea cautlioides.

THIS interesting novelty, just now flowering, hails from China, and was introduced to cultivation by Messrs. Bees, Ltd., through their energetic collector, Mr. George Forrest. Though at first some misgiving as to its vigour was felt, it is proving quite hardy at Glasnevin, having passed through the last two winters out of doors without protection quite uninjured. It is altogether different from anything else in the rock garden, the flowers being of the same appearance of a *Canna*, to which indeed the plant is related. The flowers, which are of a pleasing shade of light yellow, are produced at the apex of stout stems, about a foot high; each stem carries about six flowers which open in succession. This plant is growing in a rather peaty soil in a partly shaded position.

STEPHEN ROSE.

Herbaceous *Spiræas* and *Astilbes*.

By J. W. BESANT.

THERE is still some confusion in the minds of gardeners regarding the difference between *Spiræa* and *Astilbe*. The similarity in habit and necessary cultivation is so close that for practical purposes the designation of *Spiræa* is generally made to suffice for all.

The difference, such as it is, is mainly botanical and lies in the presence of several styles or stigmas in *Spiræa* and of not more than two in *Astilbe*; the former genus being placed by botanists in the natural order Rosaceæ and the latter in Saxifragæ.

Leaving the botanical aspect alone, however, we find many interesting and beautiful plants in each genus. Practically all are moisture lovers; in fact, a deep, rich, moist soil is essential to their fullest development. Hence in the bog garden, in cool, rich borders and by the sides and margins of streams and ponds are found ideal conditions for planting the various species and varieties of each genus.

SPIRÆA.—The flowering season of this genus extends from July to October, thus its value in the garden is considerable. *Spiræa Arunens*, commonly known as the Goat's Beard, is a handsome waterside plant, but good also in the border. It has large divided leaves and noble spikes of creamy-white flowers which last for several weeks. The variety called "*plumosa*" is considered the best for general purposes, but a very elegant and delightful variety not often seen is "*Kneiffii*," a plant of more slender

growth, bearing very finely-cut leaves and graceful flower panicles.

Spiræa camtschatica, also called *S. gigantea*, is the giant of the genus, growing 8 feet to 9 feet in height under suitable conditions. The stems are naturally stout and strong, and the large-lobed leaves are very handsome, surmounted in autumn by flat corymbs of pink flowers. The original form has white flowers, but is not so decorative as the pink variety.

Spiræa astilboides, from Japan, might be described as a smaller edition of the Goat's Beard, being of a similar habit of growth and not unlike it in the branched inflorescence.

Spiræa digitata is a dwarf moisture-loving species growing about a foot high. It is useful and pretty in the bog garden, and bears corymbs of rosy-red flowers.

Spiræa Fliendula, the "*Dropwort*," is a native species, better known in gardens through its double form. It is a good border plant, forming tufts of pinnate leaves from among which rise the flower stems bearing panicles of white flowers in summer.

Spiræa lobata is a handsome North American species, valuable in any position

which affords the necessary conditions for its fullest development. It will reach a height of from 6 feet to 8 feet near water, and looks very handsome when flowering freely, as it rarely fails to do. The leaves are much cut and the flowers, borne in a panicle at the ends of the shoots, are usually pink. There are several varieties or forms of this species in commerce usually sold as varieties of *S. venusta*, an old name for *S. lobata*. Some of the best are *Blushing Bride*, *Fairy*, *elegans*, &c.



ASTILBE ARENDsii.

"Pink flowers produced in July.

Spiræa palmata is an old plant in gardens and deservedly a favourite. The handsome palmate leaves make a fine setting to the brilliant red or crimson flower panicles. It is a moisture-loving plant and is seldom satisfactory in a dry position. There is a white variety, but it is inferior to the type.

Spiræa Ulmaria, the common "Meadow Sweet," is, like the Dropwort, a native plant, and also best known in its double form, at least

some bog plant, growing quite 4 feet high and bearing very ornamental "plumes" of rosy-violet flowers. The introduction of this plant marked an era in the history of *Astilbes* in gardens, since as a parent it has been responsible for the many beautiful pink and rose-coloured hybrids which are now a delightful feature of the summer garden.

Astilbe grandis, another Chinese plant, is useful, also growing in much the same way as



SPIRÆA ARUNCUS, GUNNERAS AND BAMBOOS BY THE OLD MILL RACE AT GLASNEVIN.

in gardens. It is, of course, valuable in the bog and similar places, though frequently found in borders.

ASTILBE.—This genus, so very like *Spiræa* in general appearance, has an equal value in our gardens. The various species are usually earlier in flower than some of the *Spiræas*, and this year they have suffered badly from destructive spring frosts. Only a few of the flower spikes promise to develop, the bulk of them having been quite killed. All the species, with one exception, have divided leaves surmounted by branched inflorescences.

Astilbe Davidii is a notable plant introduced some years ago from China. It makes a hand-

A. Davidii, but producing white flowers, which are not so striking as those of the previous species.

Astilbe japonica is well known as a greenhouse plant, being commonly used for forcing. It is liable to be frosted when grown outside, though in some districts it might be useful, being a decidedly pretty species when well furnished with panicles of white flowers.

Astilbe rivularis is a handsome Himalayan species, fairly well known to gardeners, and a fine plant for naturalising in damp positions. The flower panicles are very large white or yellowish-white in general effect, while the ample much-divided leaves are in themselves a pleasing

feature. There is an improved variety called *A. rivularis gigantea*.

Astilbe rubra, an Indian species, with rose-coloured flowers, is a desirable plant deserving of cultivation. The pink or rose-coloured kinds, whether species or hybrids, are very effective, and in the species under notice we get a fair height, about 4 feet, which in some positions is an advantage.

Astilbe simplicifolia has recently secured considerable notice from hardy plant lovers, and deservedly so. It is the smallest of the genus, not exceeding 12 inches. It is thus a very suitable species for a moist, well-drained position in the rock garden. The leaves are not divided as in the larger growing kinds, but are deeply lobed and all basal, none being borne on the flower stem. The slender panicle is composed of small pure white flowers of much beauty.

Astilbe Thunbergii, from Japan, is a comparatively old species growing about 2 feet high, bearing compound leaves and branched panicles of white flowers. It is also used for forcing in pots. Among the hybrids mentioned earlier there are many of surpassing beauty flowering in June and July and even into August. They are mainly the product of *Astilbe Davidii* used with some of the older species and hybrids, and a good many of them are of Continental origin, raised by Arends, and known as *Astilbe Arendsii*. The colours are mostly shades of pink and rose, the dense feathery plumes creating quite a fine effect when in flower. Some of the best are—*Ceres*, *Vesta*, *Venus*, *Pink Pearl*, *Silver Sheaf*, *Salmon Queen*, *Panache* and *Nuée Rose*.

Genista spatulata.

THIS rare and beautiful species is one of the latest flowering of the dwarf Brooms, coming into flower in late May and continuing well to the end of June. It forms a small bush 1-1½ feet high, with slender arching branches. It carries flowers of a rich glowing yellow which, though not so large as in some of the other Brooms, are borne in such profusion as to completely hide the foliage. This Bulgarian shrub delights in full exposure to sun, and planted so that its flowering shoots trail over a large rock it presents, when in flower, a very striking appearance.

Globularia incanescens.

QUITE the brightest plant flowering in the moraine in early June was a healthy little tuft of this uncommon Alpine. It is a very dwarf plant, reaching little more than 2 inches in height, with small green spoon-shaped leaves. On stiff stems, well above the leaves, are carried the heads of light blue flowers over half an inch across. It flowers very freely, the number and size of the flowers being out of all proportion to the size of the plant. In a sunny pocket of the moraine it thrives best.

The Cultivation of Pansies and Violas by Allotment Holders.

IN the neighbourhood of Hounslow (Middlesex) and perhaps more especially at Hatton, a little hamlet north of Feltham, the cottagers and allotment holders supplement their income by growing Pansies and Violas for what might be called the suburban gardeners' trade. Nearly all the cottages have their strip of garden in spring covered by either Pansies or Violas, or both, while in some allotments, which cover an area of 15 acres, most of the plots are devoted to growing the same plants.

During the summer these plots and gardens, which are from 15 to 20 rods in extent, grow the ordinary garden crops—potatoes, beans, peas, &c.—and, when the occupier can obtain it, they are manured with farmyard dung. The seed is usually saved by the grower from the previous season, and is sown about the first week in August in a small plot, if possible with a northerly aspect. When the resulting seedlings are sufficiently large to handle, they are transplanted to the garden or allotment, which by this time has been cleared of its summer crop and dug over. Having been planted out 4 inches apart each way, they are left for the winter. This year, owing to the mild weather, many are already in bloom. Their normal time of blooming is March or April, according to the season, and when suburban residents start gardening operations, hawkers make their way to Hounslow and Hatton with hand and donkey carts, and buy up the Pansies and Violas. The plants are sold in boxes usually containing two dozen, and the average price per box is 6d., but in some seasons—*e.g.*, 1911—the price was only 2d. per dozen. By carrying them into the western and south-western suburbs, the hawkers are enabled to retail them at about one penny each, but some of the plants with finer blooms are readily sold for 1½d. and 2d. each. It is necessary that the plants should have commenced blooming, for the amateur gardener likes to see what he is buying. At the rate of 3d. per dozen it is possible for a man to make £7 or £8 profit from his crop on a small allotment. In the case of a garden, his takings are mostly profit, since he pays no extra rent and does the necessary cultural operations himself in his spare time. Although it by no means follows that a man with an acre of land would make a proportional profit, it affords an example of what a man can do with a small piece of land by specialising in one particular plant for which he has a good market close at hand. In this case there are no outgoings for labour, little or no rent, for the allotments are cheaply let, and no railway expenses or salesman's commission.—*Journal of the Board of Agriculture.*



THE REV. W. FLEMING, Coolfin, Portlaw, Co. Waterford, sends some flowers of the Ghent Azalea, and writes:—"I have been raising Azaleas for several years, and think them the most beautiful of all flowering shrubs—finer to my mind than Rhododendrons. I have many beds, one containing over 90 plants. *Azalea mollis* is splendid in pots. I find they do best in pure loam, without any peat." The trusses of flower were fine and large, varying in colour from yellow to apricot and salmon pink. Unfortunately these shrubs are not a success where there is much lime in the soil.

Annuals as Pot Plants.

THERE are a large number of plants utilised for the decoration of the greenhouse and dwelling-house, especially during the winter and spring months, and it behoves the gardener who wishes to keep abreast of the times to begin to think out his plans for the months quoted above.

In the present article I shall deal with a few showy annuals that will thrive in pots and produce a charming effect soon after Christmas if given a little care and attention.

Among the most prominent are the Clarkias of the elegans class. They embrace Scarlet Beauty, which is really a fine salmon-scarlet; the flowers are double and produced in long sprays. Firefly is a vivid rose-crimson, and Salmon Queen is also a desirable variety, while Queen Mary is one of the brightest-coloured Clarkias, producing an abundance of double flowers of a lovely rose-carmine. It is an ideal pot plant, and grows about two feet high.

The Salpiglossis are pretty ornamental annuals with large-veined, funnel-shaped flowers, which are excellent for pot work and decorative purposes. They attain a height of two or three feet, and mixed varieties usually prove most satisfactory.

Mignonette is always a favourite on account of its delicate and pleasing perfume. There are a number of varieties on the market, but Machet is still one of the best, with its dense spikes of very fragrant dark-red flowers. Crimson King is of dwarf habit and delightfully scented, while the new American Giant offered by Dawkins, of Chelsea, and other giant forms are also desirable.

Scabious, particularly the German kinds, are sure to be largely cultivated in pots when their value as such is more fully understood. They are offered in various colours and as mixed, but for the majority of growers the separate kinds will prove most useful, as they are excellent for cutting.

Antirrhinums, although not really annuals, are splendid for greenhouse decoration during the dull period of the year. Great improvements have been made of recent years in the colour and habit of these charming plants. The intermediate class is preferable to either the tall or dwarf varieties, and the colours generally admired are pink and apricot, while Fire King, Barr's Sunset—an orange-rose with scarlet glow set off by a golden lip—is an admirable Snapdragon, unsurpassed as a pot plant. Fireflame is another good kind, with deep orange flowers, while Coral Red, Rosy Queen and Pink Beauty can also be recommended. These are only a few of the many sorts offered by different seedsmen, in fact they are becoming somewhat bewildering to the amateur and professional gardener.

Sweet Peas, where they can be had in bloom at Christmas, are extremely valuable for cutting. There are special varieties now offered for this purpose, but careful cultivation is essential, or they become spindly and weak, and therefore useless for winter work. Mildew is their worse enemy, but I have found an occasional spray with Cyllin soap a most effectual remedy.

If I may be permitted to make a slight digression, I would strongly advise Rose growers to try this Cyllin soap on their bushes; it will kill the aphid and destroy mildew, while it has no bad effect on the foliage, providing it is done on a dull day or in the evening.

The Schizanthus are beautiful free-flowering half-hardy annuals admirably adapted for pot culture, especially the grandiflora hybrids, Wisetonensis, the retusus varieties, and the dwarf strains offered by various trade houses. They are of easy culture, and for a spring display the seed should be sown from August till October, and if a little is sown again in February or March a good display will be secured throughout the summer. Where a number of plants are needed for dwelling-house decoration, the latter sowing will be found most useful for grouping in fire-places and large receptacles when greenhouse plants are rather scarce. Directly the seedlings are large enough they should have a separate existence, and never be overcrowded. Cool, airy treatment should be the rule throughout their growing period. As the pots become full of roots, the plants should be moved into others two sizes larger, and, as a general rule, one six inches in diameter will be most convenient for the final potting. It will be necessary to place a stout stick in the centre of the pot, to which the strongest side shoots can be neatly tied as they develop. It is most important to have a strong stake, because a thin one usually breaks away at the base just when the plants are in flower. An occasional watering with soot water and liquid cow manure will be beneficial when the pots are filled with roots.

CULTURAL REMARKS.—Seed should be sown at any time between July and September, and, with the exception of Sweet Peas and Mignonette, the seedlings must be potted off singly as early as possible. Mignonette may be sown in 8-inch or 4½-inch pots, and then thinned out to three plants, and no more repotting will be needed unless large specimens are wanted. The soil must be firm and never allowed to become dry. After they are finished with in the greenhouse they can be planted out in the open ground, and it is surprising what a lot of flower they will give at a time when Mignonette is scarce in the garden. The Sweet Peas are sown in the same size pot, and directly they are filled with roots they should be shifted into 8-inch pots, in which they will flower. They make fine material for training under the roof of the greenhouse, but where side ventilation is in vogue a sharp look-out must be kept for the first sign of mildew. In regard to the Clarkias, Scabious, Antirrhinum, and Salpiglossis, they are potted off into sixties, and when well rooted the largest examples are placed in 6-inch pots and the smaller in 4½-inch. The Antirrhinums are pinched back once in the seedling stage, and the Clarkias are also treated in the same way, and again when about 9 inches high.

Just the ordinary potting compost may be employed—i.e., a mixture of loam, leaf-mould and sand—because if a rich rooting medium is chosen, the plants make vigorous sappy growth which is very susceptible to damp during December and January. It is much better to use a poor soil and feed the plants slightly when the days begin to lengthen, but it ought to be discontinued when the flower buds are showing.

To secure the best results cool treatment is absolutely essential throughout their existence, and fire heat should only be used during frosty weather. A cold frame is an ideal place for them, providing there is no frost and they do not damp off.

No gardener or amateur need fear taking up the culture of these annuals quoted above, and with ordinary care and attention some excellent and pleasing results will be obtained.—T. W. B.

Plants in Burma.

THE following interesting letter has been received from a lady in Burma, who has sent home some new and many rare plants:—

The flowering trees on the Wumans Range (an off-shoot of the main Divide, running N.W. to the N. Maikha, the eastern branch of the Irrawaddy), were a perfect glory, and, growing at an elevation of from 7,000 to 9,000 feet in a region where there is heavy rain and snow in the winter, should be hardy.

Of these the only ones of which I could then get seed were *Rhododendrons*, the colour of which I do not know, as the bloom was over, but they were very large trees, and individual leaves measured 14 inches. Growing in a dense forest, about 8,000 feet, were two other species of *Rhododendron* unlike anything I ever saw before—slender stemmed, trees 50 to 60 feet high, branching at the top, and covered with loose bunches of sweet-scented white or pink flowers. Of these I got some seedlings, which I hope to send later when I get the opportunity. I am trying to get seeds. Another gigantic tree appeared to be a kind of *Magnolia*, covered with masses of creamy waxy flowers and bright green leaves, but the trees were so immense and quite unclimable that I failed to get a flower to examine, and could only gaze up at them through field glasses. In the same region were the tallest tree ferns I ever saw, some of them with several heads, new growths apparently starting from injuries to the stem. Also a beautiful large-flowered pink *Begonia* and a purple and a white *Gloxinia*. On the open hillsides were many varieties of *Rubus* (at least five). In some places were groves of what I believe to be a very large weeping birch tree, and, of course, ferns, canes and palms innumerable in the valleys.

Along the river gorges (about 5,000 feet) was a splendid white *Rhododendron* growing on the rocks and overhanging the water: from this also I hope for seeds later on.

All up the N. Maikha the rocks are a sheet of vivid scarlet *Azalea*, often accompanied by a white *Briar Rose*.

Further up, on the main Irrawaddy Sahoun Divide, at Hpimaw, the country is rather more open and the gorges less precipitous; the Hpimaw valley is a wide glacial lake bed, of which the old moraine forms the foot, the stream having cut a gorge at one side and drained the valley, which is laid out in neatly terraced rice fields. The grazing grounds above are full of *Primulas* and *Gentians*: above them forests of oak and pine (*Pinus Khasya*, I believe), and higher again are *Rhododendrons*, alder and a large white *Magnolia*, and a host of others.

There is a tree of which I only saw one young specimen, and that dead, which further north grows in great forests, and is much sought after by the Chinese for coffins; it seemed to me a sort of cypress, but I have heard it called "cedar" and "silver fir."

Most of the country is granite or disintegrated granite (coarse sandy clay), but here and there are out crops of brilliant white marble and grey limestone; on a patch of the latter I found *Edelweiss* at 9,000 feet.

There is also (I think), among the seeds, a

shrub which I am told has a beautiful rose-pink flower on red stalks.

Other flowering trees which I saw were a beautiful deep pink cherry, with pendant flowers, and a white thing which looked, at a distance, like a cherry, but was not. There were many *Orchids*, some of which I have here growing and in flower. Where the country is fairly open there is much cultivation—peas, buckwheat, maize, millet, a little poppy, and hill rice: and where terracing and irrigation are possible—paddy. The fields are often hedged with red or white *Pyrus japonica*, and pears, peaches and plums abound.

I wish I had been able to do more collecting and painting, but marching every day at least ten and often over twenty miles left me little time and often less energy, though I was able to ride a minute but active pony the way.

I hope to have a charming garden here.

Hints on Watering.

By A. F. PEARSON, F.R.H.S.

MOST men who grow plants of any kind know the trifles that count for or against perfect growth, instinctively the need of the plant for water or otherwise is grasped. The keen eye of the keen man sees the failing, flagging plant and takes account of its wants, which he gives at the psychological moment in a readily assimilable form. Nearly all growers see the flourishing, lusty plant and give credit to themselves for its marvellous health and rapid growth, but many fail to see until too late the arrested growth due to poverty of some kind or other, and only when vermin has seized the plant does it dawn on the unskilful cultivator that something is amiss; now, a trifle applied at the right time might have saved the plant, and therefore a trifle has lost it.

The foregoing statement may appear to many too severe, but it cannot be too much taken to heart, by the younger men especially. In the animal as well as the vegetable world the same applies; the producer of first class stock knows how much the attention to mere details does in gaining him a coveted distinction in the show ring or the market, likewise the man who shows first class plants, fruits and flowers. Probably the most ruinous failing in young cultivators is their ignorance of watering, and how and when to apply; my experience is that the majority of beginners do not realise when a pot plant requires water. They either withhold or waterlog the pot; then another applies a small quantity of water daily to every pot he sees, and so far as he is concerned that proceeding effectively deceives him, and incidentally the man in charge, as all the surface soil remains moist; but it is only superficial, and the inner roots are actually suffering and the whole plant in jeopardy. Plants in this thriftless state are susceptible to attacks by all insect pests; their systems are in a deranged state, consequently they become, at best, crippled adults, demonstrating to every passer by unskilful cultivation. I therefore suggest to beginners when a pot plant requires water give it a thorough watering, half measures will not do, but do not water a pot plant when it is full of moisture; a water-logged plant is worse than a dry one. Rapping pots with the knuckles

is a practice of worth, but that is not always reliable. Newly potted plants may be dry and give off a dull sound, thus deceiving the novice; it is most reliable when the pots are full of roots. The observant eye and a true knowledge of the plant under care is the necessary requisite to good watering. A very important factor also in relation to indoor watering is the atmosphere. During hot sunny weather evaporation is rapid, consequently more water to the roots, followed by spraying of the foliage when the sun's rays pass, should be given to keep the atmosphere moist and favourable to good growth. A sudden change from a hot spell to cold, sunless, wet days will

produce such an effect as to make watering often unnecessary for days together, and syringing is on such days, under certain circumstances, harmful. The air is so fully charged with moisture that unless artificial heat is great, pot plants draw their own supply from the air. Another mistake often made is that of watering injudiciously newly potted plants. Small plants ready for potting on are generally greedy for water, and the inexperienced man applies moisture in the same lavish way after potting, thus souring the soil and checking the plant.

A plant after pinching requires less water until fresh growths have "broken" and are ready to use up the sap that the main leader used previous to its excision. A plant or tree under the process of disbud-ding requires the same consideration, and, if the work is done at a favourable time, the water needed will be appreciably lessened.

Watering with liquid manure is another oft abused operation; the many, complete and incomplete, fertilizers now on the market are a source of temptation to the grower anxious for quick results. The imagination is readily fired by the descriptions accompanying most of these manures; doubtless the testimony of the users is correct, and great things have been achieved with the judicious use of artificials, but we must also examine our soil and the condition of the plants before applying artificial liquid. Certain plants will suffer from the use of certain salts; while some soils are rich in those elements which form the greater part of some artificial manures, therefore no general rule can be taken, as in many

cases it would be wasting money and bringing about disaster to give a soil that in which it is already rich.

The farmyard liquid manure is the best, and when diluted to a safe strength a few applications will prove its worth.

No plant should be given liquid manure until the roots have taken possession of the pot in which it grows, and a very dry pot should be watered with clear water before liquid manure is given; the roots will the more readily assimilate the liquid then without harm to the plant. It is also wise to apply such waterings in the evening or early morning, according to the aspect, but

certainly not under a hot sun. This period is short, so it naturally follows that the man ready to grasp every need of the plants under his care will make the best of them.

In case these notes may be taken as condemning the use of artificial manures I desire to say, on the contrary, in skilful hands, intelligently used, the possibilities of artificials are very great.

Dutch Irises.

A NEW race of hybrid Irises was raised some years ago by Mr. C. B. Van Tubergen, the noted bulb grower in Holland.

These Irises are in many respects similar to the well known and very beautiful Spanish Irises, but are more vigorous and flower about a fortnight earlier. The colours are quite equal to

those of the Spanish Iris, many delightful shades of blue and blue combined with yellow to nearly white being found among the various varieties. There seems no difficulty whatever in their cultivation, since planted under the same conditions as the Spanish and English Irises they thrive quite satisfactorily. It is evident that where a good show has to be maintained over as long a period as possible these hybrids are of inestimable value. For cutting too, now flowers are so popular with all classes, they will be much sought after, particularly as they flower just when the bulk of early bulbs are over and the early summer flowers are not quite at their full beauty.

Just at present the price is somewhat high for buying in large quantities, but no doubt the bulb growers will remedy this very soon when propagation has increased the quantity of bulbs available for market.



GABRIEL METSU, ONE OF THE NEW EARLY FLOWERING DUTCH IRIS, FLOWERS PEARLY WHITE, PALE BLUE AND ORANGE.

Rubus deliciosus.

Is it because the word *Rubus* brings to the gardener's mind a thorny Bramble that one so seldom sees this beautiful shrub in gardens? No fear need be entertained on this account, for this *Rubus* is absolutely without prickles, and makes a bush from 3 to 5 feet high with arching branches, covered in May with large white, sweet-scented flowers like single Roses, and it may be ranked as one of the best of our May-flowering shrubs.

Our illustration, from a photograph kindly sent by Mr. W. Winstanley, gives a very good idea of the shrub and its pleasing habit.

The flowers are from 2 to 2½ inches across, and the white petals are beautifully crimped and envelop a small boss of yellow stamens. The leaves are green and toothed, reniform in shape, 2 to 3 inches across, somewhat resembling those of the red currant.

Rubus deliciosus is a native of the Rocky Mountains, and so is quite hardy and grows freely in any good soil. The shrub gets its specific name from the fruit, which is said to be large, of a maroon brown colour, soft and delicious to eat, but, unfortunately, it is not produced in this country.

There are a few other members of the Bramble family which are worth growing for their flowers.

Rubus odoratus has purple flowers 2 inches across, and flowers from June to August: it grows from 3 to 5 feet high, and sends up suckers like a raspberry; in fact is sometimes called the "Purple Flowering Raspberry." The leaves are three to five-lobed. The shrub received its name on account of the fragrance of its foliage.

Rubus nutkanus is a close relative of the latter; it also comes from North America, and was first found along the shores of Nutka Sound by Menzies. It has the same habit of sending up suckers, and has large handsome leaves, 6 inches across, but the flowers are in clusters, and white, about 1½ inches across, produced from April to June.

Rubus spectabilis has smaller bright red flowers, and produces them in April and May; the leaves are trifoliate and almost smooth.

The three last mentioned shrubs are almost

spineless and excellent subjects for the wild garden. In shrubberies the only care they require is to keep them within bounds and occasionally to cut out old and dead canes.

R. ulmifolius flore pleno is the double-flowered Bramble and decidedly prickly, but the double pink flowers in clusters are very welcome and pretty in late autumn. At the end of July flowers often appear and continue until the frost comes.

Haberlea rhodopensis.

This pretty little rock plant is like a miniature *Gloxinia* forming rosettes of evergreen leaves, from which spring flower stems from 3 to 6 inches high, bearing from two to seven tubular flowers

of a bluish lilac colour. One often sees very poor forms, for it is a variable plant both in nature and cultivation; a good form should have flowers 1 inch across and segments well opened out from the tube; some are beautifully spotted in the throat with yellow and deep purple.

Many writers upon the *Haberlea* and *Ramondia* seem to copy one from another, and tell us that these plants

naturally grow in crevices and require to be planted in vertical crevices, but this is far from the whole truth.

In nature neither of these plants is confined to rock crevices, but more often are seen on sloping or flat ledges; also in cultivation they grow just as well on the flat, providing their roots are not in stagnant moisture. Some of the finest *Ramondias* at Glasnevin are planted with their leaves spreading horizontally on the ground, and have rosettes 10 inches to a foot across and bearing twenty or more flower stems.

Near to the Shipka Pass is a partly shaded cliff which is covered with the *Haberlea*, and here it may be seen in tufts 2 feet and more across, and to see it in flower in June is a wonderful sight; here it grows in loam and rotten leaves. Further south, near to Philippopolis, the *Haberlea* is plentiful on the Rhodope Mountains. On the limestone, in company with *Saxifraga porphylla*, it thrives and seeds: late in the year, with the sun more fierce and hot than ours and often very little or no shade, the leaves get burned and



Photo by]

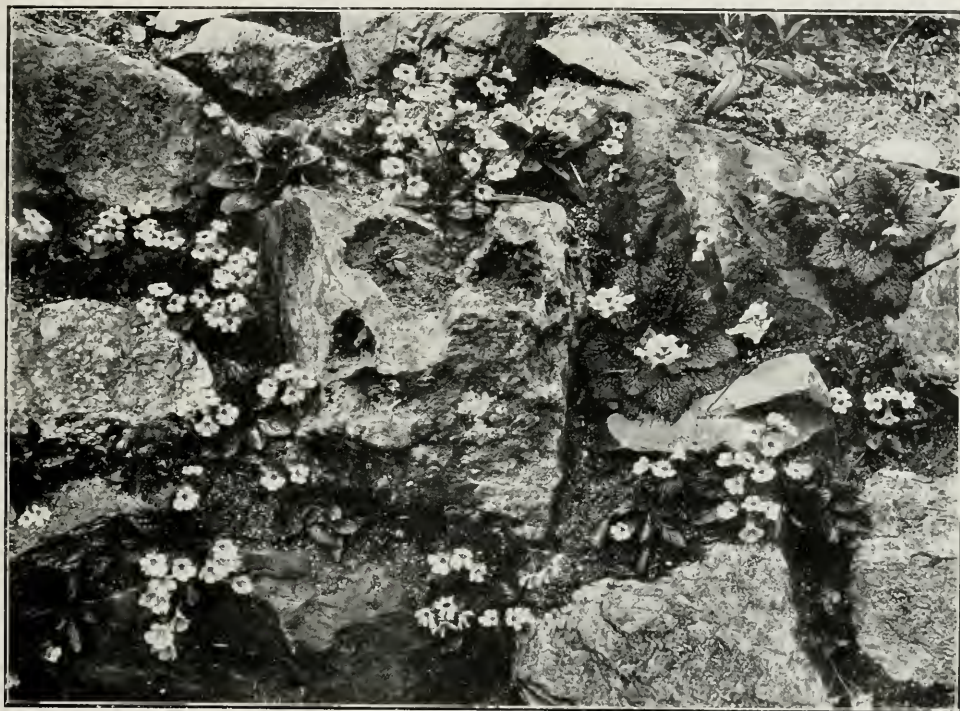
[W. Winstanley

RUBUS DELICIOSUS AT HARRISTOWN HOUSE, BRANNOKSTOWN,
CO. KILDARE.

brown, but grow up strongly the following season.

Our illustration (taken May, 1913) shows a group of *Haberlea* brought from Bulgaria and planted one year, this their second year they have flowered even more freely. They do well in any cool and well-drained soil, a mixture of peat and loam will hold moisture and suit them well. Providing they have a cool root-run there is no difficulty in growing them in sunny places, but

ferous plant of the habit and appearance of an *Iberis*. In a young state the inflorescence is flat like that of the *Iberis*, but as it grows older the centre elongates so that when at its best the inflorescence consists of a short crowded raceme. The flowers are white suffused with lilac, and though the individual flowers are small—about a quarter of an inch across—they are produced in such profusion that the plant when in full flower is very attractive. The smooth spatulate



HABERLEA RHODOPENSIS AT BOTANIC GARDENS, GLASNEVIN.

the flowers last longer in a half-shady place, and probably the flowers show better when the plants are grouped on a rock-ledge or pocket or in an oblique position between stones.

The white form, called *H. rhodopensis virginalis*, is beautiful, but still very scarce, but has rather small flowers.

Haberlea Ferdinand-Coburgi is described in some catalogues as much finer than *H. rhodopensis*, but plants bought from nurserymen and also a plant obtained from its natural habitat, Mt. Ferdinand in Bulgaria, have so far proved to be inferior and scarcely distinguishable from some of the Glasnevin plants collected near the Shipka Pass.

C. F. B.

Ptilotrichum cappadocicum.

THE possessor of the above unwieldy name is a quaint and pretty compact growing little cruci-

leaves are ciliate, while the stems are quite downy.

Saxifraga aizoides atrorubens.

IN nature this variety of the well known yellow flowered *Sax. aizoides* is always found high up in the mountains in damp places, especially where water drips down among the rocks. This would tend to prove that the most suitable position for it in the rock garden is a partly shaded nook where the soil is always cool and moist. Given such conditions with a soil composed of a mixture of half loam and half peat it grows freely. As the varietal name implies, it bears flowers of a dark red colour—rather a unique shade among the Rockfoils—and these are produced very much more freely than in the type. *Sax. aizoides aurantiaca* carries flowers of a clear orange colour and is also a very desirable variety.

S. R.

Hints to Novices.

By MAY CROSBIE.

If this hot, dry weather continues, watering will be a heavy item in the day's programme this month; but for established plants keeping the surface soil well open and loose is far better than watering, and much better results will be obtained in the long run by keeping the hoe going rather than the watering-can. A garden tool called a "cultivator" is, I think, to be preferred to a hoe. Instead of the flat blade of the latter, it has three or more sharp-curved prongs, which break up the surface soil splendidly, and at the same time penetrate more deeply into the soil than the ordinary hoe. There are several makes on the market, and they can be bought for a few shillings.

Carnations ought to be layered this month; the best stuff to use is pure sand, but where this is not available, a good substitute is a mixture of very fine soil, coal ashes, garden fire ashes, and leaf mould. See that the soil all round the plant is well stirred and made very fine, spread a thick layer of sand or prepared soil over it. Any flowers that are on the plant ought to be tied to a stake in the centre out of the way. Choose stout sturdy shoots to use as layers, and slit them with a sloping cut half-way through the under side of the stem, about 6 inches from the growing point, peg them down well, being careful that the cut is kept open; it is recommended by some to put a small piece of wood or twig in the slit to prevent it closing. The reason for slitting is that thereby the flow of sap is partially checked, and this, combined with the covering of damp sand or soil, induces the layer to send out roots quickly. When the required number of layers on the plant have been made, cover the pegged down part of the stem with the sand or prepared soil, pressing it well around the stem. Keep well watered, and by October the layers ought to be sufficiently rooted for removal from the parent plant.

In the flowering season if those clumps of Daffodils or Tulips which want dividing were marked, they can now be lifted and stored in a dry shed till early autumn, or it is just as well if feasible to replant at once. Open a circular hole in the border about 3 inches deep, and put in the largest bulbs about 3 inches apart, cover over. The smaller ones can be planted in lines in the reserve corner of the garden to grow on there to flowering size.

The autumn flowering plants such as Michaelmas Daisies, Sunflowers, Dahlias and Chrysanthemums all want attention now. See to staking; and when buying stakes remember bamboo canes are always cheaper in the end. An occasional watering of liquid manure will be greatly appreciated by the Chrysanthemums and Dahlias, &c., given either after rain or after a watering of clear water. If the weather is very dry and manure is plentiful, spread some fresh stuff round the plants, it will keep the soil moist as well as giving them some extra nourishment.

Wallflowers, Forget-me-Nots, Sweet Williams and Canterbury Bells ought all to be fit for pricking into nursery beds; as soon as ever they are large enough to handle it is better to do it.

Cuttings can now be put in of the various Pinks, Heucheras, Alyssums, Arabis, Hypericums, Aubrietia, Violas, &c. If the Arabis, &c., was cut back as recommended in last month's notes, there ought by the middle of the month to be a good supply of nice young shoots which will make excellent cuttings.

The Month's Work.

The Flower Garden.

By WM. G. WADGE, Gardener to Lady O'Neill, Shane's Castle, Antrim.

JULY has the reputation of being our hottest month. If it behaves up to its reputation, and we get the heat and sunshine we expect, a good deal of time will be spent out of doors by the owners of gardens; this makes it very necessary that every place shall be at its best. With the lawns evenly mown, walks edged and free from weeds, hardy border plants neatly staked, with many of them in flower, and the occupants of the flower beds now beginning to fulfil their mission, the flower gardens and pleasure grounds will afford much pleasure both to the owners and their gardeners.

THE BEDDING.—The plants had a hard time immediately after planting, and were slow in starting into growth. A hard drying wind, blowing strongly from the north for a fortnight, accompanied by bright sunshine, is not conducive to free growth. Use every means that will encourage the plants to fill their allotted space early. Sprinkling overhead about five o'clock in the evening of hot days is helpful. A host of small weeds have appeared amongst the legitimate occupants of the flower beds. Hand picking is a tiresome job, but in this case there is no help for it. While weeding, pick off any stale blooms and leaves, and loosen the surface soil with a hand-fork if inclined to be hard. Some plants may need the stronger growths pinched when it is desirable to preserve the outline. Carpet bedding needs weekly attention in this matter. Plants in tubs and vases are rooting freely and will respond to a little feeding. A small handful of some well known fertilizer dusted over the surface and watered in may be given once a week, or the drainings from a manure heap diluted with clean water.

VIOLETS.—The spell of dry weather has been unfavourable for these. If water is available, apply it freely and syringe daily. Give a light dusting of soot when the foliage is damp; it will be distasteful to insects, and when washed off it will not be wasted. All runners should be regularly pinched off.

WALLFLOWERS will be large enough for pricking out. Plant them firmly in an open position on poor rather than rich ground; they will then grow sturdy and bushy, and will be better able to stand bad weather. Give them a distance of one foot by nine inches.

PINKS and CARNATIONS.—The former have been delighting us with their fragrance, and the latter will deliver up their stores of sweetness this month. Make preparations for propagation. Either may be increased by cuttings inserted in sandy soil in a shaded frame, but layering is the usual method with Carnations. Pinks being so fine in the stem are seldom layered. The operation of layering is simple and is well known. Better results will follow if the soil is loosened with a hand-fork previous to layering and a few inches of sandy loam added. If the weather and soil are dry give a thorough watering a day or two before commencing the work. Water when completed, and give a spray over in the evenings.

BULBS may now be lifted. Any that have got too crowded and show signs of deterioration

should be taken up and stored in a shed. They can then be cleaned, divided and graded in wet weather. Where Narcissus and other bulbs are growing in grass they are now sufficiently ripened to allow of the grass being mown.

ROSES.—All dead blooms and seed pods should be picked off. Any sucker growths coming from the stock take out carefully. Give liberal applications of liquid manure, and hoe the soil next day to conserve the moisture.

Insects must be looked for and kept down. Do not wait for the appearance of mildew, but give a syringing with some specific once a week, being careful to wet the under sides of the leaves. July is the best month for budding Roses. Make sure that the sap is running freely in the stocks. A thorough watering given to dry stocks will bring them into condition in a few days. If the bark can be lifted readily after making an incision, the stock is in a suitable condition. Quickness is always very essential in budding, but especially so if a drying wind is blowing. Insert the bud in the stock without delay, and tie as firmly as is consistent without bruising the bark.

POT-POURRI.—Sometimes there is a demand for scented petals and leaves for pot-pourri. Gather the petals of full-blown Roses when quite dry, and spread thinly on an airy shelf. Lavender flower-spikes should be cut when well opened, tied in small bunches, and laid to dry. They will need turning over occasionally for a few weeks. The growths of the lemon-scented Verbena (*Lippia citriodora*), also scented Geraniums, may be treated likewise. Lavender hedges may be trimmed after the flower-spikes are gathered.

The Fruit Garden.

By PETER BROCK, Horticultural Instructor
for Co. Fermanagh.

THE prospect of record crops of fruit that looked so fair at the time of writing last month's work was very much marred by the frost on the night of the 21st and morning of 25th May, which came with such a Christmas-like smack, scorching all kinds of young vegetation on high and low ground alike. At first it looked impossible to estimate the extent of the damage done to the apple crop, as Bramley and several other varieties were dropping and had nearly dropped all their blossom, and reached the stage when they are considered safe from ordinary airs of May frost. Hardy shrubs and trees, such as laurels and rhododendrons, ash, beech, silver fir and spruce were in many places as severely scorched on the young growths as if by fire. The low day and night temperatures which followed and continued for a fortnight decided the fate of many promising orchards for this year. Up to the end of the first week of this month the apple crop appeared to be, as it were, in the balance between a hang-fire and a miss-fire. Unfortunately too many have suffered the worse fate. Orchards in this country are left too much to chance and at the mercy of a few degrees of frost when much could be done to mitigate its effect by keeping up the temperature with smudge fires, such as are so extensively and successfully employed in the great fruit growing districts of America. The value of well-chosen positions for natural shelter and shelter belts have never within my recollection

been shown to better advantage than during the late cold spell, as I see some such places where the frost and subsequent cold wind has not been quite sufficient to reduce the crop to what the trees can carry to maturity without overtaxing them and lowering the quality of the fruit. Such conditions are, of course, the exception and not the general rule. Gooseberries and black currants have fared rather badly by the frost, the former being softened and dropped off, and the latter reduced to a few fruits at the base of the stalk. Plums and damsons were also affected by the cold snap, but they promise to total a fair crop.

STRAWBERRIES.—This important crop has also suffered considerably from frost, and is now being checked for want of rain. The heavy showers which accompanied the thunderstorms of the past two days will assist the swelling of the fruit that escaped being snipped before the blossom dropped. This is a good time to make preparations for new plantations. There is no crop which responds more profitably to liberal cultivation. The plant is deep-rooted and a gross feeder. It is, therefore, obvious that to obtain the best results the land should be deeply dug or trenched, and well enriched with farmyard manure. Land which has recently been heavily manured for spring cabbage or early potatoes will this month be cleared of these crops, and can be easily prepared so that the planting may be done as early in August as it is possible to have the runners sufficiently rooted, and the ground damp enough for planting. Plantations formed in August with strong, well-rooted runners, prepared as directed last month, produce the finest dessert fruit several days earlier than can be obtained from older plants. The distance apart is a matter which the soil and situation control. On rich, deep, well-sheltered land Royal Sovereign requires from 24 to 30 inches between the rows and from 12 to 18 inches apart in the row, or they may be planted 12 inches apart in the row and every alternate plant hoed out immediately after the first crop is gathered. In this way a heavy crop can be procured the first year. Runners for next spring planting should be raised and placed in a nursery, taking care not to overcrowd the plants, so that they can be raised with a good ball of earth when required. Old plantations should, immediately the crop is gathered, be cleared of runners and afterwards thoroughly hoed and freed from weeds.

MANURING.—Trees carrying a full crop derive great benefit from occasional waterings with weak manure water, such as the drainage from manure heaps, stables, or byres. If the weather should be very dry the trees should be first watered with clear water. Weak and often is a golden rule which should be strictly observed in applying manure in liquid form. Light dressings of nitrate of soda, $\frac{3}{4}$ lb. to 20 square yards, and applied at intervals of ten to fourteen days, but should not be applied later than first week in August, will materially assist the development of a heavy crop without overtaxing the trees.

SEASONABLE CULTIVATION.—Continue to persevere in keeping the surface free from weeds and maintain a good mulch of dust. There is nothing like it for preventing escape of moisture and keeping the trees in a vigorous condition. There is a disposition with some who have been hard hit with the frost to let their trees get overgrown with weeds. This shows a great want of

grit, and is not the way to recover the losses of an adverse season. The grower who stands by his trees in all sorts of seasons invariably comes out the winner in the long run. It is false economy under any condition of adverse seasons to let trees get checked by a rank growth of weeds.

THINNING OF FRUIT.—The stoning period will now be over and all danger of stone-fruits dropping at that critical stage be past. The final thinning of plums, peaches, and apricots should not be longer delayed. The amount of fruit that any particular tree can carry to maturity depends on the vigour of the tree and the conditions under which it is growing. Young trees with a disposition to make too rank growth of wood can be controlled by leaving a somewhat heavier crop of fruit. Apples and pears should be dealt with as soon as the best placed and best shaped fruit can be selected to remain to mature.

INSECT PESTS.—Continue to keep a sharp look out for all kinds of aphids (greenfly), and deal promptly with them by spraying or dipping on their first appearance. Young apple trees have been more infested with aphids this year than usual, the outcome of slow growth due to the cold snap.

APPLE AND PEAR SCAB.—Attend to spraying for this pest. It is only by following up spraying that it can be controlled.

The Vegetable Garden.

By ARTHUR HORTON, Gardener to Colonel Claude Cane, St. Wolstans, Celbridge.

By the beginning of July most kinds of vegetables will either be planted or sown. Consequently the bulk of work for the month will be devoted to the growing crops. If hot and dry weather prevails, which is to be expected at this season, much time will be taken up in watering the various crops. In many gardens this is by no means an easy matter, as only a favoured few have water laid on in the vegetable quarters, and in many cases it has to be drawn from a considerable distance, which is a great handicap. If watering is done at all it should be done thoroughly. More good will be done by giving one thorough soaking than merely damping the surface a dozen times. All crops will derive great benefit if the surface is kept well cultivated with hoe or cultivator; even when the soil is well manured and in good heart, if the surface is in a baked and cracked condition the crops will not be satisfactory. If short manure or spent mushroom dung is available it may be applied as a mulching with advantage to many different crops, especially onions, peas, French and runner beans.

SPRING CABBAGE.—Cabbage in midsummer, when many other choice vegetables are in season, is not so much thought of. On the other hand, the spring crop coming in at a time when other vegetables are extremely scarce is much prized by everyone. The cultivation is simple, but a mistake frequently made is in sowing the seed too early, consequently a large percentage runs to seed. The time for sowing must be regulated according to locality and circumstances. It is always advisable not to depend on one sowing; make at least two, the first not before July the 20th and the second about three weeks later. The most suitable method for sowing the seed is

broadcast in beds about four feet in width. Cover the seed with fine soil to the depth of about half an inch. The bed must be securely netted, or other means taken to protect the seeds from birds. Good strains of Ellam's Early and Flower of Spring are two of the best varieties for this sowing, both turning in early, and are not so liable to run to seed as many other varieties.

FRENCH BEANS.—Continue sowing French beans at intervals until the end of the month, when the last sowing should be made on a south border if possible. By affording a little protection late in the season this crop often proves of great value in giving a good return with very little trouble.

ASPARAGUS BEDS.—About the third week in June the season for asparagus is practically over. If cutting is continued much after this date the crowns are sure to be weakened. It is of great importance that some means should be taken to secure the foliage, thus preventing the strong shoots from being broken down by wind and rain, and nothing is better for the purpose than short pea stakes. It is the general practice to top-dress asparagus with manure in November. I am of the opinion that equally good results will be obtained if a mulching is given about the end of June, after the cutting is finished; the benefit is very apparent in a dry season, as the soil is kept in a more uniform condition of moisture, and naturally helps to build up the crowns for the succeeding year. The beds should at all times be kept clean; this is best done by hand weeding.

PLANTING AND SOWING.—Continue planting out cabbage, borecole and broccoli, also leeks. Blanks in all crops previously planted should be made good. Young carrots are appreciated at all seasons of the year, therefore another sowing of the Short Horn type may be put in. Parsley, if sown now, will be found best for supplying the demand in winter and spring.

During July and August difficulty is often experienced in growing spinach, turnips and various kinds of salads. To a great extent this may be overcome by reserving a portion of a north border for this purpose.

The timely thinning of all seedlings is of great importance to the future wellbeing of all crops, and is best accomplished during or immediately after showery weather.

Obituary.

It is with profound regret that we record the death of Mr. George Gordon, V.M.H., on June 13th, at Endsleigh, Priory Park, Kew. Mr. Gordon was born at Buscot in 1841, and became editor of the *Gardeners' Magazine* on the death of Mr. Shirle Hibberd in 1890, and retired in 1913. In August, 1890, Mr. Gordon, with Mr. Lewis Castle, visited Ireland, and enquired into the state of the fruit-growing industry and the possibilities of extending fruit culture in the Sister Isle. About a month was spent in this investigation, and Mr. Gordon presented his report at the Crystal Palace Conference in September. A vast amount of interest was taken in the views expressed, and Government Departments were led to consider the suggestions made. It is not too much to state that in Ireland as in England, the value of Mr. Gordon's pioneer work in the interests of fruit culture cannot be overestimated.

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Department of Agriculture and Technical Instruction for Ireland.

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ARBORICULTURE IN IRELAND

AUGUST
1914

EDITED BY C. F. BALL.

Dwarf Campanulas—Easy and Difficult.

By MURRAY HORNIBROOK, Knapton, Abbeyleix.

It would not be possible to compress within the limits of one article anything like a comprehensive list of dwarf Campanulas; nor, possibly, is such a list necessary for the requirements of the general reader. On the present occasion, therefore, I am confining my attention principally to those which I have found desirable not alone for their beauty, but also for their simple requirements, and to these I have added a few equally beautiful, but not so easy to cultivate.

Campanulas are possibly second only to Saxifrages in value as rock plants. The majority of the dwarf varieties are truly perennial—neat in habit, easily to cultivate, and beautiful both in leaf and in flower. Generally speaking they grow freely in stony soil or in cracks and chinks of the rocks, in sun or shade; most of them spread underground by running roots, the smallest bit of which will, as a rule, make a new plant if potted up; and they can also be increased by seed—from which the plants vary a good deal.

C. acutangula flowers in July and August, and is still almost unknown and extremely rare (it was figured in *IRISH GARDENING*, October, 1912), it is one of the dwarfiest members of its race. Its foliage resembles a tiny mat-forming *C. garganica*; its flowers, borne erect on inch stems, are star-shaped and of a red-violet colour, not unlike that of *C. abietina*; it runs about quite freely in very stony loam in a hot pocket, and seems to prefer such a situation to moraine, in which it lives, but is not increasing so rapidly.

The plant I have as *C. Aucheri* seems to me to be so close to *C. Saxifraga* as to be almost indistinguishable, possibly the former is larger in the flower; both are deciduous, throwing up from the root stock in very early spring long, entire spoon-shaped leaves and very large, deep bright purple bells on single stems. With me they are the earliest Campanulas to flower, being in full flower in early May; they like sun and moraine or stony soil.

C. barbata and its white form, with precious bells and their silky hairs, seem perennial and robust in stony loam, especially if planted at the foot of a rock. Its flowering period is unfortunately short.

C. garganica is at home when planted in horizontal cracks and between large stones; in such situations its stems and flowers hug the surface of the stone, and most of its forms can stand unlimited sun—flowers, starry with white eye and rather washy in tone. *Var. erinus* is, I think, on the whole, the most satisfactory form, but a fine new form of obscure origin was found at the Tully Nursery; its colour is a deep imperial violet-blue relieved by a white eye. To my mind it is by far the most beautiful form, and has received an award of merit under the name *C. garganica* W. H. Paine. This form succeeds best with me in half shade in a sloping pocket of light vegetable soil. Another good form with self-coloured flowers of pale mauve is sent out under the name of *C. fenestrellata*.

C. macrorhiza prefers a sunny chink. It is a cousin to *C. rotundifolia*, with large wide-open, rather washy mauve bells. Its chief recommendation is the length of its flowering season.

C. muralis is possibly the most satisfactory of all dwarf Campanulas, indestructably hardy, easy to increase, easy to grow in any soil and any situation, beautiful in flower and in foliage, it is absolutely indispensable. I am under the impression that the very large dark form we grow in Ireland as *C. Portenschlagiana* is finer than the English variety of that name. Certainly *C. muralis* seeds itself freely in my garden and varies from seed, but curiously enough it does not seem to hybridise with other Campanulas. I have never succeeded in crossing it with any other variety (nor have I heard of any *C. muralis* cross), while *C. rotundifolia* seems to give hybrids for every variety I pollinate it with. *C. Muretti* is a distinct compact form with paler flowers.

C. planifolia is curiously little known, its small, tight rosettes look like a hybrid *Umbrosa Saxifrage*, its blossoms are held erect, and open quite flat; it seems to have no fads, but increases slowly.

C. pusilla and *C. caespitosa* in all their forms may be weeds in some gardens, but are none the less charming and indispensable; they look their best when sprouting from some chink in a wall or up between the flags of a path. I do not know whether the plant we grow in Ireland as

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var. Miss Willmott is true, or how it received this name, but this form with its beautiful pallid blossoms of moonlight blue has for ages been growing in small and cottage gardens in this part of Ireland.

C. pulla is a plant of mystery, described by Robinson and other experts as a "lime hater," there are few of us who did not consequently coddle it up with peat. Quite by accident it found its way, in my garden, into a slope of limestone chips and loam, where it ran about, and has eventually crowded out everything else. Its flowers are dwarf bells of the deepest imperial violet, and it prefers half shade. From correspondence which has appeared in *The*

C. raddeana does best with me in very stony soil or moraine in full sun, its shiny heart-shaped leaves are very distinct, and its drooping purple bells held aloft on wiry candelabra-like stems, are pretty, but I wish it were more generous with them.

C. Raineri vera is, to my mind, the gem of the dwarf Campanulas. The true plant is difficult to obtain, one is always receiving hybrid forms with tall flower stems. I can imagine nothing more lovely than a patch of this Campanula, its dwarf silvery leaves hardly appearing above the soil, and in the heart of each little rosette there nestles a stemless, enormous pale blue cup. There is a particularly fine patch of this plant



CAMPANULA PULLA IN LIMESTONE AT KNAPTON, ABBEYLEIX.

Garden it is now recognised as growing on limestone screes in nature, and, personally, I should never bother about giving it anything else, but I have received letters from correspondents who have absolutely failed to grow it in limestone. I confess I cannot account for this failure. The accompanying photo was taken in July, 1913, and the patch of *C. pulla* was then about 1½ yards across; it must be considerably more this year. I had a white form once, but lost it. I have still a pale form, termed *var. pallida*, which is not very attractive.

C. pulloides is most desirable, flowers much larger and not so deep in colour. It is a hybrid of *C. pulla*, and grows equally well in sun or shade. There is a darker form, *var. Kewensis*, very near in colour to G. F. Wilson, but much finer, an equally desirable plant with taller flower stems.

in the moraine at Glasnevin. The plant seems to have no fads, and only desires a very stony soil or moraine to run about in and protection while making its spring growth from slugs.

C. Stansfieldi is a beautiful little hybrid with pale yellow foliage and pale mauve hanging bells. It likes a half shady spot in loose vegetable soil.

C. stenocodon if true must be a dwarf glacier form of *C. rotundifolia*, and grows serenely in moraine.

C. Waldsteiniana and *C. Tommasiniana* both grow well with me in moraine. Both are compact, deciduous bushes, the latter taller and looser in every way, and both are exquisitely dainty.

C. Zoysii, with its quaint soda-water bottle like flowers, is most distinct, it is not difficult, but moody, and whilst some plants prosper, others unaccountably fail. It is a fitting link

between the "easies" and the "difficults," and first of the latter is *C. alpestris* (*C. Allioni*), a lime hater that will tolerate a limestone moraine, but prefers granite. It has a long taproot and throws up little stolons which do not appear to root, but bear in their turn one large upturned mauve bell.

C. cenisia is another plant which seems to demand moraine and dislikes excess of winter moisture.

C. excisa eludes me. I grow it in every possible situation and soil, and it flowers, dies down for the winter, and never comes up again. In places where it succeeds it romps like a weed. I have heard of success in a granite moraine with a leaf-mould subsoil, and again in very sandy leaf soil, but I am conscious of a growing scepticism as to the probabilities of permanent success with this plant. One occasionally hears of it growing like a weed somewhere, and when one writes one is told "it was wonderful last year, but this year it failed." Nevertheless, the plant is so distinct and, in its way, attractive that one feels bound to persevere.

C. Elatines is difficult only in open soil; if you can plant it in a crack between rocks, or in the face of a wall and protect its young growth from slugs, it will rejoice you with its little purple star-like bells, which smother the long tentacles it throws out from its root stock to hug the face of the rock in the hottest sun.

C. Morettiana has never had a fair chance, as I have never succeeded in obtaining properly rooted specimens, but I believe it in any case to be very difficult. *C. hypopolia* and *C. flexuosa* are new here; the former, with its curious grass-like foliage, looks most distinct, but although it has thriven in very stony soil, in two seasons it has never flowered.

Bulbs for Early Planting.

It is safe to say that all bulbs are better planted as early as possible, but with some kinds it is quite essential if they are to get a fair chance. Fortunately the more up-to-date nurserymen now issue lists in July containing those which must be got in early, either for autumn or early spring flowering.

Generally those genera which have to be got in thus early are grown in special positions, or at least do not come in amongst the ordinary decorative plants which bloom in summer and autumn. It would be impossible, for instance, to indulge in any extensive bulb planting operations in the modern herbaceous border during July, August and early September, when such borders are at the zenith of their beauty and must not be marred by patches of bare soil containing bulbs. Perhaps, where the front of a border is fur-



THE TRUE *CAMPANULA RAINERI* in a granite moraine at Glasnevin.

nished with low-growing creeping plants, it would be possible to dibble in small bulbs through them, with considerable benefit to the bulbs, during winter and again when in flower. In the rock garden, where so many modest mountain plants find a home, very good work may be done by associating Crocuses, Snow-drops, dwarf Scillas, Erythroniums and such like with *Thymus Serpyllum* (red and white), *Arenarias*, and lots of other creeping plants, and the beauty of the bulbs in flower will be greatly enhanced. There are, too, some autumn-flowering bulbs such as numerous species of Crocuses and Colchicums, which must of necessity be got in as early as possible. Where Crocuses are to be planted in grass, whether for autumn or spring effect, they can generally be got in quite early.

Very pretty effects are possible with the autumn-flowering Crocuses, and they should be freely used in the rock garden, which at that time is usually somewhat lacking in flowers.

Perhaps the best autumn-flowering *Crocus* for general use is *C. speciosus*, a beautiful rich blue species, which can be obtained in quantity at quite a cheap rate. Other good sorts are *C. asturiensis*, purple or mauve; *longiflorus*, lilac; *pulchellus*, blue and purple; *Salzmanni*, lilac with darker feathering; *medius*, deep lilac with conspicuous, orange stigma; *sativus*, blue and purple, with orange stigma; *Tourneforti*, rose-lilac; and *zonatus*, lilac, with an orange zone at the base of the segments, and others of much beauty.

A good selection of winter-flowering kinds might include the following:—*C. ancyrensis*, bright orange-yellow; *biflorus*, white, with violet feathering; *chrysanthus*, fine yellow, with several varieties; *Fleischeri*, a very free flowerer, white with dark lines; *Imperati*, violet and buff or fawn; and *vitellina*, rich orange yellow. There are many more species which flower early enough to be called winter flowerers, but half a dozen or so kinds are enough to begin with.

Early spring flowerers are:—*C. aureus*, bright golden yellow; *Balansæ*, deep yellow, shaded brown; *etruscus*, rosy lilac and buff; *Korolkowi*, yellow and brown; *Tommasinianus*, lavender, shaded silvery grey; *susianus*, rich yellow and brown; and *C. vernus*, of which there are several varieties. All the winter and early spring kinds should be planted in sunny, sheltered spots where they are protected from inclement weather and can get all available sun.

All the winter and spring blooming kinds are delightful grown in pots or pans, and if a cold house is available their beauty can be enjoyed when weather conditions are not tempting for the outdoor garden.

Colechieums, often erroneously called Autumn Crocuses, should be planted as soon as possible. There are several kinds of exceptional merit, some of them producing a surprising number of flowers from each bulb. Autumn, winter and spring each have their several varieties, but the autumn kinds are the most conspicuous. *C. autumnale* is one of the best known, and makes quite a good show in open places in shrubberies and plantations—the colour is rosy-purple. There is a white variety which is very attractive and also a double form. Next to *C. autumnale*, *C. speciosum* is perhaps the best known, and is a superior sort to the first named. The flowers of *C. speciosum* are larger and of better substance, and in the variety *rubrum* we get the deepest colour. *C. speciosum album* is of surpassing beauty, and should be given a prominent place,

always bearing in mind, however, that the leaves develop to quite a large size and leave a blank when they die off in early summer. Other good sorts are *Bornmuelleri*, with large rosy-lilac flowers; *giganteum*, a giant flower, soft rose in colour; *Parkinsoni*, chequered rose and white. Several species flower in early spring, notably *C. cilicium*, rose shading to crimson; *eroci-florum*, a distinct sort with white flowers lined with purple, and *montanum*, with rosy-white flowers. The smaller growing kinds are quite good for the rock garden given suitable positions.

The hardy *Cyclamens*, though not strictly bulbous plants, may be considered so for all practical purposes. They number among them many exquisitely beautiful kinds blooming in autumn and spring. They are delightful for naturalizing on grassy banks and under trees. One of the most charming effects the writer has seen was a mass of *Cyclamen Coum* growing under a tree of *Tsuga mertensiana* at Mount Usher. The soil for *Cyclamens* should be well loosened, and the addition of leaf-mould and old mortar rubble is an advantage. Good autumn flowering kinds are *C. africanum*, with blush-coloured flowers and bearing handsome leaves with a silvery zone; *C. neapolitanum* is very free flowering and reliable, and grows freely in the rock garden or under trees; the type has rosy-pink flowers produced before the leaves, and there is also a beautiful pure white variety—the leaves are delightfully marbled with silver; *C. europæum* flowers in early autumn, the flowers being crimson and sweet-scented; *C. cilicium* flowers in winter and should have protection; the flowers are white with purple centre. Spring flowering kinds are *C. Coum*, with bright crimson flowers and plain green leaves, also *C. Coum album*, a white variety; *C. ibericum*, which resembles the foregoing, but has marbled leaves; *C. libanoticum*, bearing pink or rose-coloured flowers; and *C. repandum*, a most floriferous species, bearing a profusion of bright crimson flowers in spring. These *Cyclamens* are also good subjects for growing in pans, especially the spring flowerers, which are useful for the Alpine house.

The Winter *Aconites*, of which there are two species, flower very early, especially the older kind, *Eranthis hyemalis*, which in mild weather is often opening in January. *E. cilicium*, a newer sort, is a great acquisition, flowering very freely rather later than *E. hyemalis*. Both have pretty yellow flowers and can be bought for a few shillings per hundred.

Fritillarias of many kinds are very beautiful, and should be planted as early as procurable, as they are very difficult to establish if kept long out of the soil. There are species practically

for all positions from the tall and handsome Crown Imperials to the diminutive *F. aurea*, which grows about 6 inches high, and is suitable for the rock garden. The Snake's Head Fritillary, a British native, is a pretty species with drooping flowers, chequered purple and white, while there are numerous handsome named varieties and a pure white one. Other good sorts are :—*F. askabadensis*, a pale yellow-flowered species growing about 1½ feet to 2 feet high, and flowering in early spring ; *F. pyrenaica* blooms in early summer, bearing numerous large deep purple flowers ; *F. coccinea* has distinct red flowers, and *F. Elwesii*, comparatively new, has quaint green flowers ; *F. recurva* has orange-scarlet flowers of wonderful beauty, while *F. ruthenica* is deep purplish black. Dwarfier sorts are *F. aurea*, golden yellow flowers in April ; *F. citrina*, with citron-yellow flowers ; *F. armena*, yellow ; and *F. pudica*, golden-yellow. The above are but a selection, many other interesting kinds being offered by the leading bulb merchants and nurserymen.

Snowdrops are everybody's favourites, and all look eagerly for the first pure blossoms every year. The old common species *Galanthus nivalis* is still and likely to remain first favourite for general planting. For naturalising in grass or under trees few bulbs are more suitable, and the double form of the common Snowdrop often lends itself to this purpose very effectively. The bulbs should be put in fairly thick, a couple of inches or so apart, and thus a good effect is soon obtained. Besides the common sorts there are several other much larger flowered species of great beauty.

Very similar to and quite as beautiful as the Snowdrop is the spring Snowflake *Leucojum vernum*, which flowers very early in spring. It, too, is good for planting in grass, but flourishes also in the border or rock garden. *L. vernum carpathicum* is regarded as an improvement on the type, and bears lovely pendant white flowers tipped with yellow.

The taller growing species *L. aestivum* and *L. pulchellum*, which flower later, are delightful for naturalising in damp places, and flourish in the bog garden. *Leucojum autumnale* is a dainty little species bearing beautiful pink and white flowers in autumn, and should be planted in very sandy soil in a rather shaded position, while *Leucojum trichophyllum* is equally dainty, with pure white flowers in spring, and should be protected by a sheet of glass or grown in a frame.

Several of the bulbous Irises flower in winter and very early spring, and should be planted as soon as procurable. When grown out of doors a warm sunny position is essential, with

protection from rough wind, and with facilities for placing a sheet of glass over them when in flower. A free loamy soil mixed with sand and broken mortar rubble provides a suitable root medium which facilitates the ripening of the bulbs as they finish growth in spring. There is a considerable number of these early flowering sorts, some much easier to grow and maintain than others. One of the best is *Iris reticulata*, which seems to flourish in sun or shade, and always flowers freely, the blossoms forming a beautiful combination of purple and gold. There are several varieties of this,



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A lovely Autumn-flowering species.

var. Krelagei being distinct with deep reddish plum-coloured flowers, but somewhat variable. *I. reticulata sopenensis* is light blue, though described by some authorities as variable ; *I. reticulata var. Histrio* is bluish-lilac, with white markings, it flowers very early. A later form is *I. reticulata Histrioides*, rather similar in some ways to the former, but with larger flowers. Other good early flowering kinds are :—*Iris Vartani*, pale blue ; *I. Danfordiae*, rich yellow ; *I. alata*, lilac-blue, flowering in winter, therefore should have protection ; and *I. Tauri*, a good early flowerer, with fine flowers, which are violet and black, the falls marked with white and orange lines. There are many other species of bulbous Irises differing in form and habit from those mentioned, but the immediate idea is to remind readers of the need for planting early.

J. W. B.

Marguerites.

DEAR SIR,—I enclose photo of a bed of Marguerites grown in our garden. The plants were put out three years ago, and have lived through the winters in a most exposed place. They have grown into this shape without any training whatever. The bed measures 40 feet in circumference, 16 feet across, and 4 feet 6 inches high.

Yours truly,
E. H. BOURCHIER.

Dromline, Foxrock, Co. Dublin,
June 15, 1914.

Gloxinias.

AT this season of the year Gloxinias are our greenhouse favourite, and no doubt they deserve to be, more especially of late years, since they have been so greatly improved. Hence I would like to give a few hints on their culture. The best time to sow the seeds is in early spring (March), but those who have not done so can sow the seeds now and keep the seedlings growing steadily at a temperature of 65 degrees. For seed sowing, prepare boxes 3 or 3½ inches deep, place some coarse compost for drainage in the bottom, then a mixture of

finely-sifted loam three parts, leaf mould one and a half, and silver sand half a part, fill the boxes, give a watering and leave to soak. When well soaked sow the seed and cover with about three-eighths of an inch of soil, place all in a house or propagator where 65 degrees can be maintained, cover the boxes with a sheet of glass and "brown paper," so as to maintain heat and moisture, till the tiny seedlings appear, when the boxes may be removed, and by degrees bring them into more light. Although they like light and do best in it, they resent strong sunshine, and should be shaded at all times from the strong sun; this can be done by tacking a sheet of paper inside the glass, but my plan is to whitewash the glass outside. When the seedlings are large enough to handle prick them out into boxes, using a compost the same as used previously. With slight care and attention they may remain in these boxes till the

foliage dies off and they become ripe; they can be taken up and the soil shaken away from their roots and put in their winter quarters just like tuberous Begonias. The corns should be started in March and April consecutively, in order to get a continuation of bloom for the summer; start in boxes, and when three leaves appear put them singly into their flowering pots, which should be 5½ or 6-inch size. The compost for this potting may be coarser and contain loam four parts, leaf-mould two and a half parts, and half a part of sand, with some good fertiliser added, also a little charcoal, as it tends to sweeten the soil. Keep them growing steadily and in good light, but make sure and shade them from strong sunshine. Watering is one of the principal points to be careful of in growing Gloxinias; never water till the plants require it; do not throw water on the plants every time you go into the house, as this is what ruins them and causes them to die off. A good plan, when potting, is to have the soil sloping from the corn, so as not to have the water going to the stem and rotting it.

When growing freely liquid manure may be given twice a week, with an occasional dose of a good fertiliser, to ensure a good display of bloom. Greenfly attacks the young leaves, so the plants should be fumigated as often as the fly appears.—

JN. CLEARY.



Photo hij]

[A. Coates

A BED OF MARGUERITES which has stood in the open for 3 years at Dromline, Foxrock, Co. Dublin.

Trollius pumilus.

THE majority of the Globe flowers are strong-growing plants more suitable for the bog garden than the rockery. The above named species is, however, an exception, being of quite moderate stature. From a tuft of palmately-lobed leaves the sturdy flower stems arise to a height of about a foot, each bearing at its summit a solitary flower. The flowers are of a deep golden yellow colour, flat or open like a large Buttercup, some 2 inches across, and possess a rather sweet fragrance. This Himalayan plant seems to flourish best in a light peaty soil with a full exposure to sun.

Fendlera rupicola.

THIS is an exceedingly beautiful and elegant member of the Saxifrage order, and is a native of Texas and New Mexico.

Its four-clawed petals stand out boldly and are of a fine white colour; the stamens, which are eight in number, are somewhat conspicuous, and contribute in no small degree to the beauty of the flowers.

The oblong sub-sessile entire leaves are about an inch in length.

In its native habitat *Fendlera rupicola* is found trailing over the rocks, and attains a height of only about 2 feet. In England it seems to be perfectly hardy, but is certainly benefited by being planted against a wall.

The illustration was taken from a spray obtained from the Cambridge Botanic Gardens, where a specimen is to be seen thriving in one of the borders formed by the plant houses; there it annually produces its flowers in abundance, and the shrub is 7 feet in height. Seeds are somewhat freely produced, and propagation by this method can be secured; cuttings also root readily, while layering offers a further method of increase.

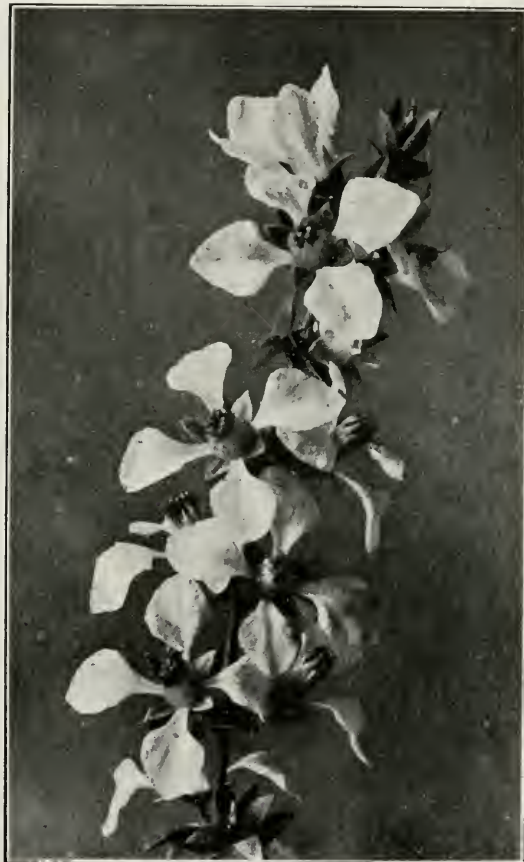
H. C. ELSDON.

Roses.

By

DR O'DONEL BROWNE.

THE two big jobs to be done during this month are tying in rambler growths for the next year's flowers and budding stocks to give maidens for next year. The art of budding has often been treated on paper, but one half hour's demonstration in the budding ground will teach more to a novice. The only advice I can give is to get some one well versed in the job to show you how it is done and then to start on your own. True, when you have been shown you will yet find that all is not going smoothly, but care and patience will help you. The one difficulty I had when I began was to know a perfect bud. It is very hard for a novice to know this, but if you only will once and for all remember that when the sheath of wood is removed from the bark that the inside of the sheath should be *smooth* and not have a dimple inside where the bud springs from, you may



FENDLERIA RUPICOLA.

A beautiful and rare shrub.

rest assured that you have not removed the growing germ from the sheath. Another point to remember is not to unduly bruise the sheath or in any way to hurt the germ of your future tree—careful and gentle handling is a great desideratum. Cleanliness is a great factor, any dirt getting on the sheath will act as a foreign body when tying in the bud and does not help the union. Now, damp weather is a help in budding, but one must be careful not to get one's hands muddy or messy. A small spot of mud may be licked out or it may be washed off by passing the sheath through

water. Speed combined with neatness is a great help towards a satisfactory issue. It is wonderful how quickly you can bud after a time, but at first the novice should work carefully and thoroughly, and speed will come in time. If you have any doubts as to whether a bud is good or not, throw it away and try another. Tying in the buds does not call for much care—the one secret is to get a tie or the lap of one tie just behind and under the bud to keep the bud pressed against the stock you are working, so that the union shall be aided. Do not tie too tightly, for if you bud in dry weather and a rush of heat and showers come the stocks will swell and your ties will become too tight in consequence. No shading is required even in hot weather. Be wise and put on a good many of one variety rather than two or three of a lot of different varieties. If a Rose is worth propagating you may have too few, but never too many. Put on then too many rather than too few.

Go over your climbers. Remove all the rods which have borne flowers and then lay in several of the young growing ones, not too tightly, to their post or support, but firm enough to prevent wind from chafing and rubbing them. Encourage all the growth you can, but do not be too greedy by retaining too many. Keep your hoe going all the time for weeds grow apace at this time of year, and by hoeing you tend to prolong your flowering period.



“Queen of Fragrance,” shown by Messrs. Wm. Paul was the winner of the “Clay” challenge cup at the Holland House Show, for a rose not in commerce possessing the true old rose scent. It is a pink flowered variety of large size and wondrous perfume that will render it popular with all.

Fruit Crop and Fruit Crop Prospects (Ireland), 1914.

NOTE.—The reports here compiled refer to the crops and prospects as far as ascertainable in mid-July. In order to secure as much uniformity as possible in the Returns a scale of descriptive terms was agreed upon—viz., (1) very good, (2) good, (3) average (4) below average, (5) bad. The names of the County Horticultural Instructors are starred (*).

County and Locality	Apples	Pears	Plums	Cherries	Gooseberries	Currants	Raspberries	Strawberries	Name of Correspondent
ULSTER									
<i>Antrim</i> —County . . .	Below av.	Below av.	Average	Average	Very good	Average	Below av.	Below av.	R. H. Clarke *
Larne . . .	Very good	Good	Below av.	Good	Very good	Very good	Average	Average	John Gny
Ballymoney . . .	Bad	Bad	Not grown.	Not grown	Very good	Below av.	Average	Average	G. Fraser *
Shahe's Castle . . .	Average	Good	Good	—	Very good	Very good	Below av.	Average	W. G. Wadge
Leslie Hill . . .	Good	Average	Average	Good	Very good	Very good	Very good	Very good	J. J. Alcorn
<i>Armagh</i> —County . . .	Below av.	Average	Good	Good	Good	Average	Below av.	Below av.	J. Hagan *
Loughgall . . .	Average	Good	Good	Very good	Good	Good	Good	Below av.	W. R. Spencer
Anaghmore . . .	Bad	Average	Very good	Average	Very good	Bad	Bad	Below av.	J. J. W. Dunlop
<i>Caran</i> —Farnham . . .	Bad	Average	Below av.	Average	Good	Bad	Bad	Bad	W. Berry
<i>Donegal</i> —Stranorlar . . .	Very good	Good	Average	Good	Very good	Very good	Very good	Below av.	W. Fraser
<i>Carrigart</i> . . .	Average	Good	Below av.	Average	Very good	Good	Average	Below av.	D. Prizell
<i>Dorn</i> —County, South . . .	—	—	Average	Very good	Very good	Very good	Average	Below av.	D. Baillie *
Stromont Castle . . .	Average	Good	Average	—	Very good	Very good	Good	Below av.	J. Troup
County, North . . .	Below av.	Good	Average	Good	Very good	Very good	Below av.	Below av.	T. Scott *
Gilford . . .	Bad	Below av.	Good	Good on walls	Below av.	Red and white good.	Below av.	Below av.	J. Lynas
<i>Fermanagh</i> —County . . .	Very good	Average	Average	Average	Very good	Very good	Good	Below av.	P. Brock *
Florence Court . . .	Bad	—	Bad	Bad	Good	Average	Below av.	Bad	J. Monierieff
Balnamallard . . .	Very good	Average	Very good	—	Very good	Good	Good	Average	H. Burke
<i>Londonderry</i> —Moncynmore . . .	Average	Good	Good	Good	Very good	Very good	Average	Average	G. T. Fraser *
Dungiven . . .	Very good	Very good	Very good	Very good	Very good	Very good	Below av.	Good	A. Davies
Eglinton . . .	Bad	Very good	Average	Average	Very good	Below av.	Below av.	Good	L. B. Archibald
<i>Monaghan</i> —Dartry . . .	Below av.	Good	Average	—	Good	Below av.	Below av.	Below av.	J. Hepburn
<i>Tyrone</i> —County . . .	Average	Very good	Very good	—	Very good	Very good	Good	Good	S. Magill *
Benburb . . .	Very good	Very good	Very good	Very good	Very good	Very good	Average	Good	W. Haldane
Sion Mills . . .	Very good	Very good	Very good	Good	Very good	Very good	Good	Very good	F. W. Walker
Baronscourt . . .	Good	Average	Good	Good	Very good	Average	Good	Good	G. H. Yea
Clogher . . .	Below av.	Good	Good	—	Very good	Good	Bad	Bad	D. McLaren
MUNSTER									
<i>Clare</i> —County . . .	Good	Very good	Average	Good	Very good	Good	Good	Average	J. Grehman *
Newmarket . . .	Average	Good	Good	Good	Good	Good	Good	Good	W. Coffee
Carigoran . . .	Good	Good	Good	Good	Very good	Very good	Below av.	Below av.	A. Barker
<i>Cork</i> —County . . .	Good	Good	Average	Average	Extra good	Below av.	Bad	Bad	J. Dearnaley
County, North . . .	Very good	Very good	Good	Good	Very good	Very good	Average	Average	L. M'Gormick *
West . . .	Very good	Average	Below av.	Bad	Very good	Very good	Average	Average	T. Belan *
South . . .	Very good	Good	Good	Average	Very good	Very good	Bad	Bad	S. E. Cavanagh *
East . . .	Good	Below av.	Bad	Bad	Good	Good	Average	Average	J. Blenkins *
Castle Bernard . . .	Very good	Good	Very good	Very good	Very good	Very good	Good	Good	P. Harper
Doneraile . . .	Very good	Good	Average	Good	Very good	Very good	Good	Average	W. Campbell
Queenstown . . .	Very good	Good	Good	Good	Very good	Very good	Good	Good	D. Burke
<i>Kerry</i> —County . . .	Good	Good	Average	Good	Very good	Very good	Average	Average	W. F. Earles *
Ballyheigue . . .	Very good	Very good	Fair	Good	Very good	Very good	Very good	Very good	W. Barrett
Killamey . . .	Good	Good	Good	Very good	Very good	Very good	Good	Good	A. J. Elgar
<i>Limerick</i> —County . . .	Good	Good	Bad	—	Good	Good	Average	Average	J. Malone *
Adare . . .	Good	Average	Average	Good	Very good	Very good	Good	Good	W. Bowles
Castleconnell . . .	Very good	Very good	Bad	Bad	Very good	Very good	Average	Average	W. M'Leod

[illegible]

Fruit Crop, Ireland, 1914

FOLLOWING two very unfavourable fruit seasons fruit growers in general anticipated a good crop, this year. Last autumn was very favourable for the ripening of fruiting wood and fruit buds, and the months of December and January being fairly dry, much good work was done in the orchards in spraying against fungoid pests and clearing the trees of moss as a harbourage for insects.

Many of the correspondents state that where they sprayed the trees properly they have had very little trouble with either insect or fungoid pests; I do not remember when fruit growers had such a dry and mild time to do their winter pruning, spraying and planting as they had last season. Only those who waited until late in the season performed the work under adverse circumstances, and trees planted early in the season are making very satisfactory progress.

April was an unusually dry month, the driest April for the last fourteen years, there being only .73 of an inch of rain. Fruit growers have very good reason to remember the last week in May, when there was a difference of 90 degrees between the highest day and the lowest night temperatures, up to 10 degrees of frost being registered in many parts of Ireland. This caused much damage to almost all kinds of fruit, apples, pears, plums and strawberries, which were well set, being the only fruits to escape. Any flowers expanded were killed, and many in the bud were so injured that they failed to open, and dropped off. It is interesting to note that more interest is being taken in the pruning of cankered wood, painting the wounds and planting varieties which are not susceptible to canker.

Apples in general in the north are below an average crop, but the quality is well up to the average. The frost of 24th May practically ruined the crop, many of the trees being in varying stages of flower at the time. This was an extra good year for fruit blossom of all kinds. They are an average crop in the midland counties. In the south, however, they are a good to a very good crop. The early dessert fruits are colouring well, and a quantity of Beauty of Bath and Gladstone will be on the market ere this report is in the hands of readers; these varieties are bearing well, though the fruit is on the small side. Grenadier, Lord Grosvenor, Lady Sudeley, Early Victoria, Lane's Prince Albert, Allington, Cox's, Bismarck, Newton Wonder and Bramley are bearing heavy crops of good quality fruit. Blenheim Orange, Lord Derby and Worcester are bearing medium crops. Stirling Castle, Pott's Seedling, James Grieve and Ribston Pippin are cankering in the south, and will not succeed with orchard treatment. In many cases Cox's Orange is suffering from canker.

Pears are the best crop for a number of years, as the majority of them were well set before the heavy frost, and therefore escaped, excepting very old trees. The fruits are also of good quality and large in size. The early pears are bearing extra heavy crops. William's Bon Chretien, Fertility, Beurré Diel, Pitmaston Duchess, Marie Louise, and Beurré d'Amanlis are bearing well. It is time we had a good crop of good pears.

Plums, though they were a lovely sight when in flower, are variable in most cases. Victoria and Rivers' Prolific are bearing well, and the fruit is of excellent quality despite the drought and aphid attack. In the Counties Dublin and Meath the old horse plums and Orleans are bearing heavy crops, as are also the damsons in many places. On walls the crop of plums is very good.

Cherries are almost a record crop, and the quality of fruit is excellent, the Irish being the best on sale in the Dublin market. The trees flowered early, and the fruit was well set before the severe frost, and therefore escaped injury. The variety May Duke bore best. There are but six reports of bad crops. Orchard trees bore heavy crops, as also did the trees on walls.

Gooseberries set a very heavy crop in most varieties, and though the frost of 24th May thinned the fruit a little, even when very large, there remained sufficient for a heavy crop. The berries are scarcely so large as last year owing to the very dry weather. Almost all growers, private and commercial, report good crops. The varieties Amber, Whinham's Industry, Warrington, Crown Bob and May Duke have borne best.

Black currants are a good crop generally, especially in the commercial orchards, from which large quantities have this year been exported to England and Scotland. By propagating from clean stock, and by destroying diseased bushes, black currant mite is rapidly decreasing. Boskoop Giant and Victoria are best market fruit, and the fruit is large and in good condition.

Red and white currants are also bearing well, though in many cases the trees suffered very much from the effects of being eaten by the caterpillar of sawfly and magpie moth.

Raspberries on the whole are from an average to a good crop. They promised very well. The frost, however, prevented them from fulfilling the promise, as very many of the best flowers were blackened in the centre. The remainder set fairly well, but the very dry weather at the swelling period prevented many of the fruits from maturing. Superlative, Gormansdown Seedling and Falstaff bore well, but there was not such a good crop on Bath's Perfection, which is being extensively planted.

Strawberries are in general a poor crop, and only the first picking was of good quality. The later fruits were small, misshapen and tough in texture. This condition was brought about by aphid attack, heat and drought, which were abnormal at the fruit-swelling period.

This is the only fruit of which I may state there is a much below average crop in this country.

Royal Sovereign, Leader and The Laxton bore best; the late varieties were poor.

Taking the hardy fruit crop as a whole, I am pleased to state that it is a good one.

I beg to offer my sincerest thanks to the numerous correspondents for their great kindness in filling in and returning the report forms.

Insects were very troublesome on all kinds of fruit trees this year. Not only were the attacks numerous, but they were in many cases very severe and recurring. It was almost impossible to keep down leaf-eating caterpillars and aphids, and it is some time since fruit growers had such an anxious time combating insects.

It is many years since aphids were so destruc-

tive; no less than 43 per cent. of the correspondents state that they are amongst the most troublesome insects, the attacks being severe.

Gooseberry sawfly is given by 36 per cent. as being very bad, and has caused very much damage to the gooseberries in a number of cases, taking off almost all the leaves. Very much damage has also been done, especially around Dublin, by caterpillars of the magpie moth.

Winter moth was not so severe as last year, only 18 per cent. being reported. Apple sucker and American blight were severe with 15 per cent. each, and red spider was destructive on gooseberries with 7 per cent, codlin moth was destructive on apples with 10 per cent.

Tortrix and ermine moth and black currant mite were not so troublesome as last year. Owing to the very dry weather fungoid pests were not so prevalent, nor were the attacks anything like so severe as last year.

Canker and apple scab are each recorded by 27 per cent. as being their worst enemies. Apple mildew is still on the increase, and is recorded as being bad by 12 per cent., and American gooseberry mildew by 11 per cent. This and black currant mite are two notifiable pests under the American Gooseberry Mildew and Black Currant Mite (Ireland) Order, 1912.

Silver leaf is spreading rapidly, not only on plums, but also on apples. It is recorded by 5 per cent. It is prevalent around Dublin and in Meath plum orchards. There are few cases of shot hole fungus, brown rot, coral spot and peach leaf curl reported.

W. IRVING.

Royal Horticultural Society.

THE Summer Flower Show of the Royal Horticultural Society of Ireland, which was held on Friday, July 10th, in the Iveagh Grounds, Harcourt St., was one of the most successful summer shows ever held by this Society. Throughout the day the attendance was very large. Though in point of numbers there was a slight falling off in entries in some of the classes, the quality of the exhibits, excepting, perhaps, Roses and Sweet Peas, was well above the average. Owing, no doubt, to the hot, dry season, many of the Rose exhibits were much below the average, though in some classes, such as the Cup class, Teas and Noisettes, the exhibits were very good, and well up to the high standard expected at Dublin shows. In the smaller classes, many of the stands were quite unfit for exhibition, and exhibitors must be urged to take more trouble with their Roses. A very successful exhibitor of Roses was T. F. Crozier, Esq., who was first in the class for a Table of Roses, 6 ft. by 3 ft., and also in the class for Hybrid Teas, stand of eighteen blooms, not more than two of one variety, while for a stand of six blooms of a dark variety he was also placed first. The Challenge Cup, presented by Lord Ardilaun (to be won three times before becoming the property of the winner) for a stand of twenty-four blooms, in twelve varieties, and not more than six of one variety, was won by J. H. Welch, with T. F. Crozier and J. Campbell Hall second and third respectively. The class for Roses, stand of twelve blooms, not more than two of any one variety, was won by R. J. C.

Maunsell, who also received the premier award in the class for Hybrid Teas, stand of six blooms in six varieties, Fitzadam Millar and Mrs. Gilmore being second and third.

The results of the unfavourable season on Roses was also to be seen in the trade exhibits, the Roses this year not being quite up to the usual high standard of merit generally associated with the names of the famous Irish Rose growers and raisers, though a number of really good novelties were shown. Messrs. Hugh Dickson, Belfast, had a very fine stand of Roses, occupying all one end of a tent, which deservedly carried all before them. This firm gained a special gold medal for a stand of twelve blooms of new varieties, which was a really creditable exhibit. Amongst the exhibits on this stand were the new seedling H. T., Mrs. Bertram Walker, a very fine Rose of a cerise pink, which gained the gold medal at the National Rose Society in London a few weeks ago; another new seedling H. T. of a soft pink, the Marchioness of Ormond, was awarded a certificate of merit; while another H. T., the Countess of Granard, a clear pink, was also very good. Another gold medal Rose exhibited by this firm was Brilliant, a gem of the first water, and undoubtedly a Rose with a future. This firm's stand of a table of 72 blooms was one of the most effective exhibits in the Show.

Messrs. Alex. Dickson & Sons, of Newtownards and Dublin, were not quite up to their usual standard, having had the best of their Roses destroyed by a thunderstorm, and only exhibited for general effect and not for competition, except in table decoration class. Among the best new Roses raised by this firm and exhibited were Margaret Dickson Hamill, a very deep orange-yellow; H. V. Machin, a last year's Rose and a gold medal winner at the National Rose Society's Show; George A. Hammond, a present year gold medal winner; and David McKee, a magnificent Rose, shown for the first time. Probably the best of their new Roses is Mrs. Wemyss Quinn, a Rose of good body and shape of the Rayon d'Or class and colour, but of a rather deeper and more lasting yellow. This firm's exhibit of decorative Roses was one of the most striking features of the show. Two outstanding Roses in this exhibit were Red Letter Day, a bright crimson, semi-double, of excellent shape and colour; Irish Fire Flame, a beautiful new single, which is a distinct improvement on Irish Elegance.

Sweet Peas, of course, were an attractive feature, and if not so numerous as in other years were mostly of high quality, though some of the exhibits appeared to have suffered from the trying season. The most successful exhibitor of this popular annual was Miss Field, Shanganagh Park, Shankhill, who was first in two of the classes, the premier award in the remaining class being won by Mrs. Moffitt, Ashgrove, Monkstown.

Pot plants were well shown, Pelargoniums being particularly good, as also were the Gloxinias. Alderman Bewley, Danum, Rathgar (D. M'Intosh, gardener), was first in the classes for Gloxinias and Pelargoniums; while for table plants Stanley H. Cochrane, Woodbrook, Bray (G. Bowers, gardener), was the winner.

The exhibits in the section for hardy cut flowers were of very high quality, especially the first prize groups. There was a noticeable tendency

in some of the groups towards duplication, and some weak vases were unnecessarily introduced which considerably detracted from the merit of the groups. *Romneya Coulteri* was shown in grand condition by one exhibitor, and a very pretty vase of *Gillenia trifoliata* was much commented on, and it was unfortunate that the flowers were unnamed. The first prize winners in the two classes in this section were Mrs. George Mitchell, Ardlui, Blackrock, and W. C. Murphy, Deepwell, Blackrock.

A novel class introduced for the first time was that for 24 vases of cut flowers of Alpines grown in the open without protection. The winning group, exhibited by Mrs. Mitchell, Blackrock, was of high merit, honestly representing the class of plant scheduled.

For a collection of flowering shrubs in six distinct varieties Captain Lewis Riall, Old Coma Hill, Bray, was awarded the premier prize, with Mrs. Keiff next. Exceptionally good were the trusses of single and double *Zonal Pelargoniums* shown by Alderman Bewley and Judge Bird.

The exhibits in the fruit section were not quite so numerous as usual, though the high quality was well maintained; grapes especially were excellent, some large and well shaped bunches being shown. In the case both of black grapes and *Muscat* of *Alexandria* it seemed rather a pity to have cut some of the fine bunches exhibited before they were quite ripe, when these bunches could, with advantage, have been reserved for a later show. The first prize stand of white grapes was shown by Lady Emily Bury, with F. V. Westby a good second; for black grapes the same exhibitors were in similar order of merit, with Sir James Dougherty third. Melons, especially those shown by Alderman Bewley, were very good; currants also good; strawberries were sparingly exhibited; while the first prize dish of peaches, shown by Lady Emily Bury, were of splendid quality, as indeed were most of the peaches shown. Alderman Bewley led with a dish of nectarines of exceptional merit, and in tomatoes the first prize went to Mrs. Maffett. These last were well shown, and it is satisfactory to note that quality rather than mere size is being adopted as the standard by exhibitors.

The vegetables shown were very good, and here again it is satisfactory to see exhibitors are improving. The exhibits were clean and of excellent quality, both in single dishes and in the collections, the first prize in the large collection being an admirable exhibit. We trust judges will continue to encourage the standard of quality and cleanliness. For the collection of vegetables, nine distinct kinds, Nathaniel Hone, St. Dolough's Park, Raheny (Mr. Reid, gardener), led with a meritorious collection; R. Stephenson, Cranford, Stillorgan Road (Mr. Buggie, gardener), being awarded second prize. In the class for a collection of vegetables, six distinct kinds, Col. Claude Cane, St. Wolstans, Celbridge (Mr. Horton, gardener), was best.

The trade tent was, as usual, well filled. Messrs. Jameson & Sons, Sandymount, had a large group which occupied the whole centre and ground space of the tent; it was a very effective and tasteful display, well worthy of the gold medal awarded to it. There were fewer of heavy

cumbersome and, to flower lovers, meaningless designs; it would have been better if there had been none. Their Carnations were particularly good.

Messrs. Watson & Sons, Clontarf Nurseries, Dublin, occupied one side of a tent with a stand of Alpines and hardy flowers 60 feet in length, for which they were awarded a gold medal. There were over 70 varieties of summer-flowering Alpines, chiefly grown in pans, including *Campanula garganica* W. H. Paine, which received an award of merit when shown the previous week in London by Messrs. Watson. The major form of *Thymus Serpyllum coccineum* was very distinct and rich in colour, *Mesembryanthemum falci-forme* was very bright.

Among the hardy flowers *Lavatera Olbia*, the handsome pink bush Mallow, drew attention, also a noticeably good form of *Scabiosa caucasica*. A selection of Messrs. Watson's real border Carnations was also shown, and a group of the dwarf pink *Polyantha* *Rose Orleans*, which is a very useful bedder.

Holland House Show.

JUNE 30TH TO JULY 2ND, 1914.

ONE of the most lasting impressions carried away from this year's great Summer Show of the Royal Horticultural Society was that of the heat. No one was very comfortable with a temperature of 90° in the shade on the second day, and, although on the opening day the thermometer stood somewhat lower, it was pitiable to see the Roses, which wilted before the show was long open to the public. This was peculiarly unfortunate for the Irish exhibitors who brought such fine blooms so far.

Well over one hundred novelties were placed before the Floral Committee, but less than a tithe of these received recognition, and of the latter two came from Ireland. Messrs. Bees showed *Hypericum laevis rubrum*, which gained a first class certificate. The flowers are fiery orange, and it was one of the most interesting novelties in the show, but, coming from Asia Minor, will need further testing as to hardiness. Messrs. Alexander Dickson & Sons, Belfast, received an award of merit for their new Sweet Pea, *The President*, so named, presumably, from the fact that their Mr. Hugh Dickson is President of the N. S. P. S. this year. The variety is especially brilliant in colour—rich orange scarlet—and of good size, much superior to *Thomas Stevenson*. The other Irish novelty to receive the distinction of an award of merit was *Campanula garganica* W. H. Paine, shown by Messrs. Watson & Sons, Clontarf Nurseries, Dublin. It is already known to many growers of Alpines in Ireland, and is a very beautiful and extremely vigorous variety with blue rays and a very sharply-defined large white centre. It was photographed and reproduced by the *Gardeners' Chronicle* and *Gardeners' Magazine*, the former describing the exhibit as "a wonderful pan."

Messrs. Alex. Dickson's Rose exhibit was composed chiefly of their latest novelties, including *Red Letter Day*, with its wonderful colour; H. V. Machin, a grand crimson H. T.; *Queen Mary*, a

gold medal Rose of 1913, was charming (silver flora medal). On Messrs. Hugh Dickson's stand Ethereal (since re-named Golden Spray) was delightful, it is a single cream of most lovely form and shade: Gorgeous was also very fine, and the arrangement of the group was admirable, as one could inspect every variety with ease (silver flora medal).

There were about twenty exhibits of Sweet Peas, Messrs. Sutton & Sons having a large and striking stand of about 150 varieties with colours blended in a most artistic manner. Messrs. Alex. Dickson & Sons were awarded a silver cup for a large stand, varieties such as George Herbert, Lavender, King White and Hilary Christy arranged on uprights and arches giving a good finish.

The only other Irish exhibit noted was that of the Donard Nursery, Newcastle, Co. Down. This was composed of interesting shrubs, and obtained a silver flora medal.

Rock gardens were even more numerous than ever, and many of these were well done in the open. Groups of hardy flowers were on all sides, but space will not permit of reference to more than one or two of the most prominent stands. Messrs. Wallace, of Colchester, carried off the big Coronation Challenge Cup for the finest group in the show, and perhaps the most beautiful exhibit ever seen at a show. A winding stream, bridged with huge slabs of rock, was bordered on both sides with groups of Iris *Kämpferi* bearing flowers of which some were almost a foot across. Just a few other plants were introduced, such as the new *Trollius chinensis*, *Rodgersia tabularis*, and an odd plant of *Lythrum roseum*, but these were entirely subordinated to the Iris. A good plant for water gardening was noted—*Salix purpurea nana*, a dwarf Willow with slender bamboo-like foliage.

The show had an enormous attendance and made one wish once again that a proportionate interest were taken at Irish shows. Even so late as an hour before the close of the third day a stream of people could be seen depositing the entrance charge at the gate.

New Roses at the "National" Show.

AUGUSTUS HARTMAN.—A seedling Hybrid Tea of vigorous habit with stout, bushy stems. Said to be perpetual flowering and good for exhibition or bedding. The blooms are large, deep and slightly conical in the centre, the individual petals being very large. The colour is rich glowing vermilion scarlet, reminding us in this respect of George C. Waud. The fragrance, though not powerful, is very pleasing. Shown by Messrs. B. R. Cant and Sons, Colchester. Gold medal.

MARGARET DICKSON HAMILL.—A seedling Hybrid Tea, good for exhibition or bedding. The plant as shown has a very branching habit and spiny stems, but the blooms are not too erect. They are of good size and substance, fairly full and slightly conical. Colour, yellow, flushed apricot. Not very fragrant, though slightly Tea-scented. Shown by Messrs. Alex. Dickson & Sons, Hawlmark, Newtownards. Gold medal.

CLYTEMNESTRA.—A seedling Hybrid Tea suitable for garden purposes and said to be perpetual

flowering. A cluster Rose, the blooms being produced in large trusses. The open flowers are of ragged shape and of blush white, flushed apricot colour. Shown by the Rev. J. H. Pemberton, Havering-atte-Bower. Gold medal.

MAJESTIC.—A seedling Hybrid Tea of vigorous, upright habit with stout, spiny stems. The flowers are large, deep, of good substance, slightly conical in shape and very sweet scented. The colour is glowing soft vermilion pink. Shown by Messrs. William Paul & Son, Ltd., Waltham Cross, Herts. Gold medal.

MRS. BERTRAM WALKER.—A seedling Hybrid Tea of erect branching habit, and said to be perpetual flowering. The flowers are borne on stout, erect stems, and are of medium size, have plenty of depth and substance, and are of rather conical habit. The colour is a glowing cerise pink. Shown by Hugh Dickson, Limited. Gold medal.

MRS. MAUD DAWSON.—A large Hybrid Tea seedling of branching, dwarf habit, and evidently free flowering. Said to be good for bedding or exhibition: certainly it will be excellent for the latter purpose. The blooms are very full and conical, and leave nothing to be desired in shape. Colour, deep bright crimson. Very fragrant. Shown by Messrs. Alex. Dickson & Sons, Hawlmark, Newtownards. Silver-gilt medal.

DOROTHY VARDEN.—A hybrid rugosa, making a large shrub or bush 4 feet to 5 feet high, and said to be perpetual flowering. The blooms are freely produced, semi-double and slightly fragrant. The half-open flowers are glowing apricot salmon pink, changing to a much paler shade as they age. Shown by Messrs. George Paul & Sons, Cheshunt. Certificate of merit.

MRS. ARTHUR BIDE.—A seedling Hybrid Tea the result of a cross between Mrs. T. W. Massey and Souv. de Catherine Guillot. Habit vigorous and branching, and said to be perpetual flowering. Might be aptly described as a double Irish Elegance. Only slightly fragrant. Shown by Messrs. A. Bide & Sons, Limited. Certificate of merit.—*The Garden*.



Erysimum linifolium.

For the introduction of this plant we are indebted to Clarence Elliott, who brought seed from its native country (Spain) year or two ago. Last year it flowered at Glasnevin for the first time, the seed being sown in May and the plants flowering in November and October. This year the plants commenced to open flowers in early May, and continued well on into June, this being no doubt its normal flowering season. The plant attains a height of about one foot, with narrow leaves, about 3 inches long, having sinuate margins. The flowers, which are almost as large as a Wallflower, are of a colour quite distinct from the majority of its relatives, being of a rather deep lilac. When better known this plant is sure to become a warm favourite with Alpine lovers, its distinct colour and ease of culture being greatly in its favour.

Hints to Novices.

By MAY CROSBIE.

SUMMER pruning of fruit trees is too often neglected, but there is no doubt that when properly done trees are greatly benefited by it. The object of it is, by stopping the growing shoot, to make the eyes at the base of the shoot fill out and form good buds for next year. The operation, therefore, consists in cutting a few inches off the shoots, taking rather more off the side shoots than off the leaders of the branches, but always bearing in mind that the summer pruning should be only a stopping and never a severe pruning, as if the shoots are cut hard, and heavy rains come in the early autumn, a second growth is the result, and all the buds, instead of remaining plump and well filled, will start to grow, and the pruning will have done more harm than good. When doing the wall trees, any shoots that may be wanted ought to be tied to the wall, slightly bending them in only, as they are very brittle now and easily broken off. If there is any apple mildew about, the tips of all the shoots cut off ought to be burnt. The remedy for both apple and rose mildew is sulphide of potassium dissolved in water ($\frac{1}{2}$ oz. to 1 gallon of water) applied with a sprayer or fine syringe to both the upper and under surfaces of the leaves. If the attack is severe, two applications of the wash will be necessary with an interval of a few days.

The autumn bloom of Roses will be much improved if the bushes get a good mulch of manure now. See that the surface soil of the beds is loose before putting on the manure, which, as well as giving extra nourishment, will help to preserve the moisture of the recent rains in the soil, and also keep the roots cool.

An excellent plan to insure good autumn Sweet Pea, and particularly for those who are away from their gardens in August, is to cut a couple of feet off their Sweet Pea plants, fork the soil lightly round them, and in September there ought to be a fine second growth and second crop of flowers. If either manure or liquid manure is available give them some.

Yew hedges can be clipped this month. As soon as the fruit is gathered from loganberries and raspberries the old fruiting canes ought to be cut clean out, and in the case of the former, the long new growths tied to whatever support they are grown against, giving each shoot as much room as possible, so as to get all thoroughly ripened.

Attend to staking of Dahlias, Michaelmas Daisies and Sunflowers, as we so often get high winds and heavy rains at the end of the month. The outdoor Chrysanthemums too require attention in this way, and also if some of the flower buds are taken off, the buds that remain will produce much finer blooms and last longer. It is quite worth the trouble, and the only varieties that need not be done are the tiny button ones and the singles.



LATE CHRYSANTHEMUMS.—During August the different varieties will show their flower-buds at varying dates. The process described as "taking" a bud really consists in leaving it, but removing all the shoots or flower-buds that appear around it. As a general rule, it should be remembered that greater size is obtained from the "crown" bud and better colour from the "terminal" bud.

The Month's Work.

The Flower Garden.

By WM. G. WADGE, Gardener to Lady O'Neill, Shane's Castle, Antrim.

AUGUST is the month sometimes said to be a breathing time for gardeners. Methinks it is often very contracted. True, we should take time to make a thorough and critical survey of the results of our work, now they are apparent, so that we may profit thereby in the future. A note-book is always a necessity, and especially so at this season. Such things as the behaviour of any newly tried shrub or plant should be noted; also any arrangement of the plants that has not been altogether pleasing, as well as anything that has been particularly successful. Then, if we are fortunate enough to visit any of the public parks, or flower shows, or neighbouring gardens, there are certain to be some features we shall wish to recall at some future time, and our memory is nearly sure to play us false, if we trust to it. For our guidance when propagating it is well to note now any larger or smaller number needed of any particular subject.

PROPAGATION.—In gardening it is essential that we take long views. Oftimes preparations have to be made for work months beforehand. Although the bedding plants have only now attained anything like their full beauty, we must begin propagating for next summer's display. The bedding Geraniums demand first attention. Start with the variegated varieties, as they are more tender, and leave the ivy-leaved varieties till last, these rooting much freer than the others. In taking the cuttings discretion must be exercised not to make any unsightly gaps in the beds. Cut off a few now from the inner and thicker parts of the beds: then go over them again in ten days' time for another batch. It is an excellent plan, where practicable, to put some plants of each variety in some place purposely for stock. Early cuttings will not be plentiful this season, owing to the dry weather, but what is lacking in quantity may be balanced by the quality, as they are not likely to be over sappy. They may therefore be inserted without any preliminary drying. From most points of view the best method of striking the cuttings is in boxes. Good drainage is essential, then fill the boxes firmly with sandy soil and insert the cuttings 2 inches apart. A sunny corner out of doors is a suitable position, and the boxes should be placed on a thick bed of ashes, or raised from the ground on rough boards. Provision must be made for covering with lights in case of a heavy rainfall.

Pentstemons and Antirrhinums are deservedly popular just now. They are easily raised from seed, but in the case of named varieties or any good seedling it is wished to perpetuate, they should be propagated as soon as suitable side growths can be got. These may be dibbled in a frame. Shade must be given during sunshine, as any flagging is detrimental to a good strike. Pentstemons raised annually from seed or cuttings certainly produce the largest spikes and blooms, but it is worth while leaving some plants to remain over when they are growing in a mixed border, or even a bed of

a single variety. They will produce a large number of spikes and flower earlier in this way. Some clumps in a border of the kitchen garden here, planted three or five plants together, are carrying upwards of fifty spikes.

Cuttings of shrubs may be inserted this month, choosing short, well-ripened shoots of this year's growth that can be pulled off with a heel. Any *Violas* that have been flowering since spring and have become very elongated should be cut back. They will soon break again, and the resulting growths will furnish ideal cuttings for inserting later.

DAHLIAS.—Secure these to the stakes by additional ties as the growths extend, and remove many of the shoots. Earwigs are very destructive on these plants and *Chrysanthemums*. Take steps to trap them, either by placing inverted flower pots, with a little hay in the bottom, on the top of the stakes, or some sections of broad bean stems placed amongst the leaves of the plants. The insects will hide in these during the daytime, and can be blown or shaken out into water.

CHRYSANTHEMUMS.—The early border varieties are showing bud, on some there has been flower since June. They do best in a showery summer: the welcome rains in July will help them cover the ground. Those varieties that are best disbudded must be attended to in this respect. The smaller flowering varieties, and those with the buds arranged more loosely, may be left to flower in natural sprays. Now is the time a little feeding will be very beneficial.

GLADIOLUS.—A good watering with liquid manure should be given these before the buds begin to unfold. A little support is needed. A long stake is not necessary, if it reaches to the bottom flower buds that will do. Keep the ground hoed.

LILUM CANDIDUM (The Madonna Lily).—Clumps of these may often be seen thriving in cottage gardens, and sometimes in larger gardens they are a failure. They resent being disturbed. If they are growing and flowering well by no means move them, but if they are deteriorating, or from any reason it is necessary to transplant them, this is the best month for the operation, as soon as the flower stems have died down. Do not keep them out of the soil any length of time. A suitable distance for planting is 6 inches apart, and rather less in depth. They are less liable to disease if in a sunny position and well-drained soil. If the soil is heavy and retentive, make it more suitable by the addition of some material that will keep it open, such as lime and brick rubbish, charcoal and sand.

HEDGES.—Ornamental hedges of yew or other plants, if cut this month, will make just sufficient new growth to cover that very hard, stiff appearance they take on after clipping, and not enough that the outline will be preserved during the winter.

HERBACEOUS BORDERS.—The chief work on the borders will be the removal of dead and withered foliage and flower stems: the giving of further ties to such plants as need it, hoeing and watering. Remove the flower spikes from *Delphiniums*, leaving about 2 feet of stem standing. By shortening back any plants that have passed out of flower their neighbours will have more room to develop. Should there be any bare patches where bulbs or annuals have died down, now is the time the *Chrysanthemums*, planted in reserve as advised in a previous calendar, come in useful.

The Fruit Garden.

By PETER BROCK, Horticultural Instructor
for Co. Fermanagh.

THE heavy showers of rain during the past week has improved the growing condition of young trees, but it has not been sufficient to reach the deeper roots of old trees. All kinds of fruit trees and plants would benefit from more moisture at the roots. The dry weather appears to have kept apple scab in check, as trees that were badly affected on fruit and leaves at this date last year, although not free from traces of spot on fruit and foliage, are much less affected this year. Trees that have been three times sprayed with lime-sulphur-arsenate of lead are very free from any traces of spot or scab.

Weeds are always ready to make headway, and it is in such a season as this that a little extra attention is required in keeping a clean, loose surface, by frequent stirring with the hoe.

SUMMER PRUNING.—Trees, especially young trees, derive much benefit from a careful thinning of shoots that may be overcrowding and not required to form a permanent part of the tree. The best time to begin a partial or summer pruning is when the shoots show a firmness indicating that growth is approaching completion; those which have been grown for the purpose of maintaining root action, and are now causing overcrowding in the tree, may be shortened to within four or five inches of the base. It is safer to err on the side of beginning summer pruning a week late, rather than begin a week too early, as a heavy fall of rain may cause a stronger flow of sap and cause the buds that were intended to be dormant to start into a late succulent growth.

RASPBERRIES.—Immediately the crop is gathered cut out the old fruiting canes. Select the best of the young canes for next year's crop, and secure them against breakage by wind and so that they may be evenly and fully exposed to the influence of sun and air. Timely attention to this work will be amply repaid by the improved condition of the canes for next year's crop. Hoe and thoroughly free them from weeds. Remove all useless suckers from the base of the canes selected to remain by pulling them off with a sharp jerk. If suckers are plentiful and required for new plantations, select the best some distance from the old plants and allow them to remain till they ripen. Towards the end of October or early in November they may be lifted and planted in permanent quarters or in nursery lines till required.

STRAWBERRIES.—The forming of new plantations should be attended to as early this month as it is possible to get the plants and the land to be planted in suitable condition for planting, as directed last month. Any arrears of cleaning old plantations should be attended to without delay.

MARKETING.—In early districts such apples as Gladstone, Beauty of Bath, and Irish Peach will be fit for use towards the end of this month. These varieties should be pulled and used as soon as the pips turn brown, as if left too long on the tree or stored they turn mealy and lose their flavour. When well grown properly graded and packed the above sorts command remunerative prices. Cooking sorts, such as Grosvenor and Early Victoria, will also be coming fit for use. These

varieties are, as a rule, very heavy croppers and may be thinned by about one-half, picking the largest, and allowing the smaller ones to grow on to a more profitable size. This affords early relief to the trees, at a time when prices generally rule high for first-class stuff, especially when offered in flats—a package very popular in the Dublin market. Early Victoria is a very tender-skinned sort and requires careful handling.

WASPS.—These destructive and troublesome pests are unusually plentiful this season. Their nests are easiest located on a bright day, when anyone who has practised marking their flight can locate a nest as far as the flight of the wasps can be seen, or the trail may be followed half a mile till found. The nests, when found, should be promptly dealt with. For this purpose, a strong solution of cyanide of potassium is the most effective remedy for getting rid of nests quickly. Prepare the solution as follows:—Place five ounces of cyanide of potassium, commercial, in a wide-mouthed bottle, such as a pickle bottle, that will contain a pint of water, fill the bottle with tepid water and cork securely, and in one hour it will be fit for use. This bottle should now be labelled *dangerous poison*, and kept securely locked up when not required. To destroy the nest, wind a ball of tow on the end of a pliable twig, such as a willow, about two feet long; dip the tow in the bottle, then insert in the passage hole and push it well into the nest. If the tow reaches the combs, the whole nest may be immediately dug out and destroyed by breaking them up with the spade. If there is any doubt about the tow having reached the nest ten or fifteen minutes will be sufficient to render the digging out operation safe from stings. There is no danger of stings from wasps returning to the nest, and once the plug is inserted there is no danger from those inside. To avoid the unpleasant fumes of the cyanide keep to the windward side of the bottle when uncorked. The bottle should be carried by wire or strong cord. Nests may be destroyed by throwing the crystals of the cyanide about the size of small gooseberries into the hole; its action is hastened by throwing some water in after it, but the immediate digging out might not be quite free from stings.

The Vegetable Garden.

By ARTHUR HORTON, Gardener to Colonel Claude Cane, St. Wolstans, Celbridge.

OWING to the exceptionally dry spring and summer most kinds of vegetables are in a very bad way, and unless rain comes in the near future the outlook is anything but promising. Gardens that have been deeply trenched suffer less during periods of drought than others dug in the ordinary manner, and the grower who believes and practices deep cultivation will during this season be reaping the benefit of his extra labour by getting at any rate a fair crop which otherwise in all probability would be a failure. Heavy drenchings of water should be given, if possible, to such subjects as peas, beans, celery and marrows. Large quantities of celery are lost annually by bolting or running to seed which in many cases might be avoided if strict attention at all times was given to watering.

Peas at this season are frequently infested with

thrips and mildew; the best preventive is good cultivation and plenty of water at the roots. Occasional syringings will be found very helpful if given during the cool of the evening when the sun is off the plants. Most subjects will be greatly benefited by waterings of liquid manure, provided it is not used too strong; it is always safest before using to give a good soaking of pure water first.

CUCUMBERS AND TOMATOES.—The seeds of both cucumbers and tomatoes may now be sown if intended for winter use, as it is most essential to have strong established plants before the short days of winter come in. In the case of tomatoes, many of the best cultivators raise this batch from cuttings; plants raised in this manner are always stronger, and what is of more importance, come into bearing much earlier than if grown from seed. Whichever method is practised, the aim should be to get as sturdy plants as possible. Plants in full bearing will be much improved by occasional soakings of weak liquid manure. Care should be taken never to apply this if the soil is very dry and the plants flagging or more harm than good will follow. Cucumbers that have been bearing fruit for some time should have all useless growths thinned out to make room for the young.

CELERY AND LEEKS.—If required early in the season, earthing up may be commenced. No hard and fast lines can be laid down for carrying out this work, as so many good growers have their own particular way with equally good results. Personally I prefer to leave the earthing up of early celery until about seven or eight weeks before it is required. By doing so, in dry seasons like the present, watering can be done, which is most essential if good results are expected. On the other hand, after a fair amount of soil is added, watering to be effectual is a difficult matter. Care should be taken to earth up gradually. If too much soil is added at one time the heart gets covered, and the plants will in all probability be crippled. Occasional dustings of fresh lime and soot will be a check on snails and slugs, which are some of the worse enemies with which the celery grower has to contend.

PLANTING AND SOWING.—Owing to the unfavourable weather to vegetation in general many blanks will require making up in the vegetable quarters. If the precaution was taken to prick out cabbage, cauliflower, broccoli and all winter greens, the resulting plants will come in useful for this purpose, also for filling up ground previously occupied with early peas, spinach and potatoes. The later plantings will probably be found of more service than those planted a month earlier, as more favourable conditions for growth are to be hoped for as the season advances.

Good breadths of leeks may still be planted as ground becomes vacant; this planting often proves of great value during late spring, especially in gardens where onions are difficult to cultivate.

Frequent sowings should be made of turnips and spinach, also lettuce, endive, radishes, mustard and cress if the weather continues hot and dry. A north or west border will be found the most suitable for these subjects.

From about the 20th to the 25th, according to weather conditions, is the usual time for sowing winter onions. The ground chosen for this should be in the open and in good heart. It is most important to dig the ground to a good depth, but no manure will be required.

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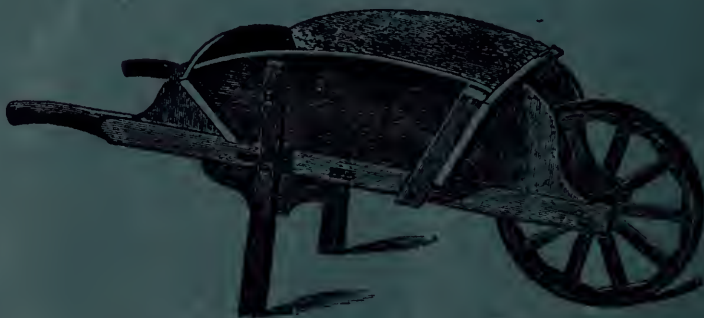
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1914

EDITED BY C. F. BALL.

Spring Frost Damage to Forest Trees

By A. C. FORBES.

OF the various enemies of the forest, whose name is legion, probably none creates greater havoc or causes greater discouragement than spring frost. Animals, insects, or fungi can separately or collectively damage, or even totally destroy, individual plantations or certain species over a wide area; but damage of this kind is usually localised, and is rarely so widespread as to occasion serious alarm in this country. Spring frost comes not only when it is least wanted, but also when it is least expected. On a certain day in May or June, as the case may be, plantations and nurseries show the luxuriant growth and fresh foliage which have inspired generations of poets for centuries back, and the forester feels that some satisfactory results are to follow the labour of several years' planting and tending. On the following morning, from 25 to 50 per cent. of the previous day's store of vegetation is black or drooping, and thousands of acres of plantation appear as if scorched by fire or some poisonous exhalation. Sad experience and the self-recording thermometer alone give any clue to the cause, for, as a rule, this day does not differ materially from its predecessor, whether as regards temperature or sunshine, and the sensa-

tions of the average individual seldom experience any change in the weather conditions which would account for such widespread destruction. A glance at the needle of the self-recording thermometer, especially if the instrument rests

on the grass, explains the matter. The temperature is found to have fallen for a shorter or longer period to anywhere between 15° and 25° Fahrenheit, corresponding to a screen temperature of about 10° or 12° higher. Why it has fallen so suddenly, and why the fall occurs on dates which coincide very closely from year to year, no one knows, but the end of May and beginning of June appear to mark the period during which the greatest damage is done over an average of years, not only in this country, but over the greater part of Northern Europe, causing incalculable damage to farm, garden, and forest



COTTAGE TULIP, MRS. MOON.
Much reduced.

crops and retarding the subsequent growth of many sensitive species for two or three years.

Whether Ireland suffers more or less than other countries from spring frost cannot be decided offhand, but so far as the year 1914 went, there is some reason to suppose that the damage to young plantations exceeded anything recorded within the last twenty or thirty years, taking the

country as a whole. From the 26th to the 29th May, ground frosts of from 12° to 18° Fahrenheit were experienced over the greater part of Ireland, some districts escaping with frost on one night only, while others had four severe frosts in succession.

The species suffering most were, as usual, Silver fir, and of these the common Silver fir, *Abies pectinata*, lost the whole of its young shoots in most situations, trees fifty to sixty feet in height being frosted to the top. Spruce also came in for a share of the damage, having the majority of the lower shoots killed. The leading shoot, owing to later growth, fortunately escaped in the majority of cases. Douglas fir and Sitka spruce, however, were badly cut back, and the majority of trees planted within the last eight or ten years are crippled and deformed by the loss of leaders and principal side shoots, and several favourable seasons will be necessary before this damage is repaired. On the other hand, *Abies grandis* appears to have suffered little if at all, and this freedom from frost injury has been noticed in other seasons. Amongst broad leaved trees, ash, beech, and oak were most damaged, but, having greater powers of recovery, the ultimate effect may not be so serious. A most unusual occurrence was the injury noticed to the tips of alder, elm, poplar, and several other species.

While the injuries described above are more or less general in many seasons, the frost of 1914 was quite exceptional, and gave, and still gives, serious concern to foresters who are planting or about to plant areas of bare ground in low-lying districts. There is not the slightest doubt that the surface of ground covered with grass suffers more from spring frost than a bare surface, and, while it is impossible to get rid of grass in a damp climate, such as that of Ireland, previous cultivation, either by ploughing alone or ploughing followed by a crop of oats, potatoes, or similar agricultural crops, would leave the ground in a better condition for planting than when the trees are put in on the turf. This, however, can only be done under very exceptional circumstances, as when ordinary pasture ground is being turned into plantation, while, in cases where it can be done, the grass quickly re-establishes itself after the first year or two.

Foresters all over Europe have, therefore, chiefly to fall back upon the old custom of planting or preserving a shelter wood over the more tender species. This shelter wood is usually created by planting in advance a crop of birch, alder, or other broad-leaved species which can be pruned up or thinned out a few years later. Under the canopy so formed the frost-tender species are planted, and grow up in partial shade until they are more or less above the normal frost line, or from 8 to 10 feet in height. One

of, if not the best, species for forming this shelter wood is the grey alder, *Alnus incana*, which grows rapidly, and has the important merit of maintaining a straight and fairly stiff stem. It is, however, not so easy to raise successfully on very poor land, and here birch comes in more useful. The disadvantage with birch is its long, pliable crown, which in windy weather sways about and lashes the leaders of all rigid-growing trees, such as spruce or Silver fir, with which it comes in contact, and whose leaders are not adapted for treatment of this kind.

One of the drawbacks associated with a special shelter wood is the additional expense and loss of time incurred before the more valuable permanent crop is put in. A shelter wood to be of any use must be established at least six or eight years, and, in most cases, longer, before the tender species are introduced amongst it. The market value of the shelter wood itself, again, is usually very small, so that the expense of establishing it may be regarded as an extra cost to be charged against the main crop. A further disadvantage may also arise in the necessity for putting up two lots of wire netting on ground where rabbits are particularly numerous. As a rule, neither birch nor alder is seriously damaged by rabbits, but where these animals are in large numbers they will attack anything, and although they may not actually kill out these two species, they will certainly injure them and retard their arrival at a stage when they can be regarded as satisfactory protection against frost. Many foresters, therefore, believe that it is better to trust to the trees gradually working their way above the frost line, as in most cases they do sooner or later, than to go to the extra expense incurred by creating these shelter crops, and to leave the planting of well-defined frost holes either alone for a few years until shelter is raised up round about them, or to stock them permanently with frost-hardy species, such as birch, alder, poplar, sycamore, elm, or pines.

Another method of counteracting frost injury may be adopted when an old wood is about to be cleared for the purpose of replanting. This consists in leaving a certain number of trees standing to the acre which will provide a requisite amount of shelter for the protection of the young crop. If the shade is too dense, the species planted below will grow up soft and spindly, and lack that vigour and sturdiness which are essential for their development into first-class timber. If, on the other hand, the shade is very thin, a severe frost may work as much havoc as on bare ground, while the trees which escape are usually the smallest and least developed individuals under the immediate shade of the old timber. The success of this method, therefore, cannot be regarded as

altogether complete. A further disadvantage is in the fact that the old timber must sooner or later be removed if the new crop is to attain a complete density. In this removal a certain amount of damage is invariably done to the young trees, especially if these consist of conifers. Ash, beech, or oak, owing to their elastic shoots and their capacity for making new leaders when the original ones are destroyed, do not suffer to the same extent.

Probably the best results arising from the partial preservation of an old crop are obtained by leaving narrow strips or belts at intervals through the wood, and planting up the cleared spaces between them. The young trees are in this case fully exposed to light, and, therefore, more liable to frost injury, but the canopy afforded by the old crop does a great deal to check the sudden fall of temperature, while the side shade it affords prevents the effect of frost being felt so severely, shelter from the early morning sun being as important as direct shelter from above.

On the whole, the ultimate recovery from frost damage depends chiefly upon the vitality of the individual tree. Weakly individuals, when cut back two or three years in succession seldom recover sufficiently to grow into useful timber. As in the case of many other tree injuries, the choice of suitable soils and situations, and the use of strong, robust plants at planting will do much to minimise the bad effect of spring frosts, which, like many other evils, have to be tolerated when they cannot be avoided.

Cottage and Darwin Tulips

By J. W. BESANT.

WITH September here gardening people begin to think of bulbs for the spring display, and among others Tulips have to be considered. The beautiful varieties of the Cottage and Darwin sections are becoming increasingly popular, and justly so, since in May and early June our gardens would be the poorer without them.

One of the greatest charms of both sections is their hardiness—they may be left in the ground for several years and will continue to give fine flowers. The self colours are glorious for beds and groups in open shrubberies, but nowhere do they look so well as in the herbaceous border, where the fresh young shoots of the herbaceous plants fast pushing up just when the Tulips are blooming make a rare setting to the flowers. To get good blooms a fairly rich and



DARWIN TULIP, PROFESSOR FRANCIS DARWIN.
Much reduced.

retentive soil is necessary. This does not mean a wet soil, however, but a well worked garden soil, such as would grow good vegetables or herbaceous plants. Needless to say fresh manure is detrimental and should not be placed near the base of the bulbs. Ground which has been well manured a year or so previously is usually in good order for Tulips, and will contain enough food material in mild form to ensure satisfactory growth.

The question of the "breaking" of the colours is a troublesome one, and in some soils is the cause of a good deal of vexation. In the writer's experience this trouble is more common in limy

districts than in those from which lime is absent. However, for garden purposes, some of the broken colours are quite good enough for decorative work, and many good varieties are cheap enough to be renewed at intervals. Under the distressing circumstances prevailing in Europe at present there may be a shortage of bulbs from Holland, but luckily in Ireland we have several enterprising commercial growers who can more than hold their own in producing Cottage and Darwin varieties, so that we may cheerfully "carry on," relying on home supplies to keep our gardens beautiful, and hope for more peaceful days to return.

With regard to varieties, these are numerous in both sections, but, unless there is some special reason for growing a big collection, far more satisfactory results are obtained by growing only a select few, and these in as generous a quantity as can be afforded. Masses of fifty or more bulbs will give a finer display when in flower than numerous small clumps of six or eight bulbs. Circumstances alter cases, however, and in the herbaceous border, which is also thickly planted with perennials, it is possible to grow a fairly large collection in small groups and still get a good show; the herbaceous plants act as a foil to the colours and obviate what would otherwise be a medley.

The depth and distance apart to plant must be governed by the length of time it is intended to leave the bulbs down. It will, of course, be understood that a fresh bulb is formed every year, and consequently if left down the new bulb has to pass through the winter without having been examined, and flowering and non-flowering bulbs come up together. To get a good show of colour fairly thick planting is usually practised, but for most Cottage and Darwin kinds eight inches apart and five to six inches deep will be suitable. There are some kinds with small bulbs which may be planted closer and shallower—viz., Bouton d'Or and retroflexa, which will be better at, say, six inches apart and four inches deep.

It is an open question whether a dwarf carpeting plant should be used in conjunction with Tulips. When planted in beds on lawns it is, in the writer's opinion, an advantage to use a suitable spring flowering plant as an edging or groundwork. If means are limited for the purchase of bulbs it is easy to raise a stock of Violas, Aubrietias, Alyssum, Pansies, Myosotis, &c., and by planting a broad edging of any one of these and massing a Tulip of suitable colour in the centre a very fine show is obtained at little expense. As an alternative the carpeting plant may be planted all over the bed and the Tulips dotted lightly through, a practice which finds favour with many. Care must be

taken in the arrangement of the colours to have either a pleasant contrast or an equally pleasant combination.

In the Cottage section a fair selection of moderate priced varieties would include Billietiana, yellow; Bouton d'Or, deep golden yellow; Caledonia, orange-scarlet; Cassandra, cherry rose; Coronation scarlet; Didier, crimson, and Didier alba, white; Elegans, crimson, Fairy Queen, rosy heliotrope; Fulgeas, vermilion; Gesneriana, fine crimson scarlet; Gesneriana lutea, very fine full yellow; Golden Crown, yellow flushed orange-red; Inglescombe Pink and Inglescombe Scarlet, two fine varieties; La Merveille, salmon-rose, flowering late; Macrospeila, crimson and sweet scented; Maculata, a fine scarlet; Mrs. Moon, handsome yellow; Picotee, white, margined rose; The Fawn, rosy fawn to blush rose. There are many other equally fine varieties available in our home nurseries and bulb grounds, and there need be no trouble in finding sorts to suit all.

A few good Darwins are Europe, salmon-scarlet, shaded rose; General Kohler, cherry crimson; Glow, bright vermilion; Grand Monarque, plum purple; Hecla, crimson-maroon; Loveliness, satiny-rose; Margaret, delicate blush; pink; Farncombe Sanders, rose-scarlet; Nautica, dark cerise rose; Pride of Haarlem, salmon-rose, shaded scarlet; Psyche, rich rose; Rev H. Ewbank, silvery heliotrope; Suzon, soft rose; The Sultan, almost black, and Wedding Veil, blush white, shaded silvery lilac.

The three blocks illustrating Cottage and Darwin Tulips have been kindly lent to us by Messrs. Hogg & Robertson.

Obituary

GEORGE DICKSON, J.P., V.M.H.

It is with the greatest regret that we record the death of Mr. George Dickson at the age of 83. In Newtownards and Belfast he was a prominent and popular figure, and all Irishmen are proud of the work he has achieved, for no man living or dead has done more for the development of the "Queen of Flowers" during the last half century. The founder of the Newtownards firm has spread the fame of Irish Roses over the seas to the Continent, America, and other countries. During his life no fewer than forty-six gold medals have been awarded to the firm by the National Rose Society for new seedling Roses, among them being Red Letter Day, Margaret Dickson Hanill, Edward Bohane, Queen Mary, George Dickson, Mrs. Foley Hobbs, Mabel Drew, George C. Wand, Irish Elegance, &c., while many of his Roses raised twenty and thirty years ago are still standard varieties. Until the day he died, Mr. George Dickson was wheeled in his chair through the grounds to see the seedling Roses. Two of Mr. Dickson's sons are already well-known as Rose specialists, while a third devotes his well-directed energies to sweet peas and vegetables, &c.

How to Conserve our Food Supply

By A. F. PEARSON, F.R.H.S.

WAR in Europe, with all its attendant horrors brought home to our very doors, has made the most casual amongst us think. With some of our trade routes closed, many disorganised, and nearly all of our enemies' sea-routes blockaded, our food supplies must suffer, we are dependent on many of the nations now at war for so much. Ireland is, perhaps, the most fortunate of countries by reason of its agricultural pursuits. Cereal crops are promising, cattle, on account of the "Rinderpest," are more numerous than usual here, so we are better prepared than many for shortage in food. It behoves us, however, to conserve all we have and economise by methods hitherto unheeded. Extravagance at such a time is criminal.

The owner of land has a responsibility in proportion to his holding and means, and although the present season of the year is not the most favourable to intensive cultivation, still much can be done by way of adding to our winter and spring supplies of vegetables.

Every vacant space in the garden can be filled by seeds or plants; rotation for once must go; deep cultivation may be set aside if time and labour forbid. Ground vacated by potatoes may be planted with August sown cabbages, and cabbage seed may still be sown. *Ellan's Early* April and *Flower of Spring* are good varieties for present sowing, and will make excellent plants for spring planting. Cabbage plants put in now to cut in spring may be planted as close as one foot apart. They support each other, require no earthing, and are much earlier than those occupying more space. Colewort, can be planted still, and will make useful stuff for drawing in early spring.

Land cleared of peas can be tilled and sown with turnips. *Orange Jelly* and *Clirk Castle*, both of which will, with favourable weather, get

through the winter, and provide a spring supply, although I prefer July or August sowing. Winter spinach and spinach beet may still be sown.

New plantations of strawberries can be utilised by sowing onions of the *Tripoli* class between the lines for spring drawing, or if necessary they may be thinned and allowed to mature a crop. This, of course, is not desirable for the welfare of the strawberries, but the present is an abnormal case, and need not be made controversial.

If land cleared of old strawberry plants is not yet used, cabbage, coleworts, spinach, &c., may be put in, and if there are leaks in the seed beds, they may still be planted.



COTTAGE TULIP, SUMMER BEAUTY.

Much reduced.

The shortage of vegetables in spring will be very marked as our Continental caterers have laid aside the ploughshare for the sword and the pruning hook for the spear, and although our first thought must be a wholesome vegetable, we must also think of delicacies for the wounded and disease-stricken sailors and soldiers who may, ere this is published, be amongst us. To those who possess forcing houses, French beans may be had in plenty. He who has a large breadth of seakale will later on utilise it by gentle forcing.

Asparagus can be sacrificed in odd cases by forcing, and a useful substitute for seakale is *Swede* turnip tops, grown by placing the turnip in a darkened forcing pit. When nicely served, these blanched tops

are equal to seakale. Frames may still be used for sowings of kidney beans, and with luck a crop may mature before frost sets in.

Lettuce of the hardy winter sorts should be pricked out on sheltered south borders, as also should parsley sown last month. Peas and broad beans may be sown next month for early summer supplies.

Apart from the importance of sowing and planting now, it is equally important that we should harvest every seed and root in view of likely shortage next year. Peas now ripening their seeds can be saved and used for soups, &c. Broad beans and kidney beans generally thrown out as waste should be retained for emergencies. Vegetable marrows can be preserved as a jam. It is perhaps unnecessary to mention roots such

as carrots, beetroot, parsnip, &c., but split and badly formed roots ought to be saved this year instead of being given to the horses and pigs. Salsafy and scorzonera are so seldom grown that they need no mention.

Potatoes, so far as their keeping qualities go, should be kept in pits. Those really green ones can be used for seed, but many large tubers protruding through the soil and partially greened can be used for food at once, the green bitter part being merely cut off. This economy will add considerably to the stock at a time when potatoes will be high in price.

Kohl-rabi, if grown, may be kept longer than one has hitherto regarded its season. Celery ought to be carefully preserved. In the case of wet weather through the winter it can be covered with sheets of corrugated iron or canvas coverings. White celeriac will prove a useful substitute for celery well into the spring months.

Jerusalem artichokes can, of course, be utilised in the usual way by either pitting or leaving them where grown and digging as required. Leeks can be used more fully than usual. Borecole can be used from the bottom leaf to the heart, not as is usual the heart cut out and the bottom leaves wasted. The sprouting broccoli gives much valuable food in the spring which is often wasted. Asparagus kale also ought to be carefully used up; every shoot will count.

Water-cress may be used as an addition to the table, and, contrary to many ideas, can be grown without the aid of a water trench or stream; a rich manured trench grows it to perfection.

All the nuts are excellent food, and any one possessing them will harvest every one.

Rhubarb can, of course, be preserved, and makes an excellent addition to the food supply, and in a few weeks more the stools can be prepared for forcing into growth. The small cucumbers, "Gherkins," can be pickled in conjunction with cauliflowers, small onions, &c. These may be also made into chutney. Endive and lettuce can both be had throughout the winter, the former blanched. Anyone possessing a good supply of hard-fed horse manure can provide a daily supply of mushrooms, even without the help of a regular mushroom house, a cellar or dark shed suiting almost as well. Herbs of all kinds will ere this have been saved for winter's supply.

The crop of apples in Ireland this year is a bountiful one, and the fruit is good. If the price of sugar is not considered prohibitive, they as well as all other fruits can be preserved as jelly or jam. The wild crab of the hedgerows as well as the rowanberry make excellent jellies, the latter possessing medicinal properties. The common parsley, too, makes a beautiful amber-like jelly. Plums, blackberries, and red currants, if still hanging, may be bottled in glass jars: these will come out fresh for a year or more after bottling. Bottling outfits may be had from the large stores or direct from the makers, Fowler, Lee & Co., Queen's Road, Reading. Complete bottling outfits can be procured at from 20s. to 50s.; numbers of bottles 24 to 86, and capacity 4 gallons to 14 gallons respectively. These outfits are excellent, and jars of a larger size can be had at moderate cost for preserving rhubarb, asparagus, peaches, leeks, &c. The directions are simple, and the fruits or vegetables can be had at any time, quite as fresh as the day they were

bottled. I can vouch for such things as green peas, beans—broad and kidney—plums, gooseberries, currants—black and red—loganberries, peaches, apricots, &c., turning out of the bottles in perfect condition the following year. Obviously an acquisition of this kind is worth acquiring.

Apples of the late keeping kinds, such as Bramley's Seedling, Lane's Prince Albert, Newtown Wonder, &c., should be stored and not sold at present. The early sorts are a glut on the market now, and they, if not made into jelly, could be cut into fritters and dried for preserving late into the year. I am not a *chef*, and can only refer readers to the cookery books for the necessary information. Possibly many apple growers are without a properly constructed fruit house, but a barn, outhouse, or cellar will keep sound apples nearly as well as the most up-to-date house, and, if these are not available, the late keepers may be pitted like potatoes and opened out when required. I have seen tons of Bramley's Seedling apple stored for weeks in this way. Storing in sand is a good way of preserving apples, provided frost is kept out. Apples are just as likely to keep in heaps as when laid out on trays in a fruit room. Pears may be kept similarly.

It is, perhaps, not within the province of this article to mention eggs. Being an allied subject, however, I would recommend all who have more than they can use at present to pickle the surplus in jars or buckets, using water glass as the preserving agent. It can be had from any oil or colour merchant with directions. Eggs so preserved are particularly fresh months after being put into water glass, and eggs will be dear next spring.

All cereal crops will, of course, be used judiciously, as with the shortage in our overseas European supplies the next few months will, in all probability, see prices rise.

In urging readers to act on the foregoing suggestions, I claim no superiority. Only it appears to me that many who have always had enough for their own particular needs will allow that to suffice this year also; but we are facing a position of extreme gravity, where widows and orphans must be provided for. Fathers and mothers unable to help themselves, left without sons to earn for them, sick and maimed in the war filling our hospitals—on our very doorsteps—then we non-combatants must do our duty by helping those helpless ones. It is the only privilege left us, and we ought to be proud of giving, from our much or our little, to those less fortunate, and by filling at once every empty available space each one will be adding his quota to a laudable work.

Rudbeckia speciosa

THIS is one of the best of the late-flowering Coneflowers, very free and quite hardy. The compact and dwarf habit makes it a useful plant for the front of the border, or it may be massed near the edge of a shrubbery. The average height is 18 inches to 2 feet. The flowers, produced in August and September, are about 2 to 3 inches across, and very useful for cutting. The golden ray florets surround a black cone-like disc. Increase may be readily effected in autumn or spring by dividing the old plants. In some gardens *Rudbeckia Newmanni* is the name by which it is known. North America is its native country.

Herbaceous Phlox

By JAMES KEARNEY, The Gardens, Inverisk, Killiney.

"PHLOX DECUSSATA" or "Flame Flower" stands unrivalled amongst hardy flowers, and is well worthy of a place in gardens of large or small dimensions. No other perennial can produce such a glorious display of flowers from July to October: their range of beautiful colour, delicate fragrance, and long period of flowering render them indispensable. At the time of writing (August 12th), what a pleasure to look over the borders solely devoted to their culture, and admire the lovely shades of blue, pink, mauve, scarlet, white, &c.: it cannot but impress one as to their real beauty in the flower garden. Success in their cultivation depends upon well-prepared ground, careful selection of the site where to be planted, thinning of the shoots in early spring, staking in good time, and regular attention to watering and mulching in dry weather.

In preparing to plant, select a position where the plants will not be exposed to full sunshine, and trench the ground two feet deep, incorporating with the soil (if light and gravelly) a good dressing of well-rotted cow manure, and if inclined to be heavy use rotted stable manure, with the addition of leaf-soil and road scrapings to ensure porosity. Should the soil be infested with "wire" or "eel worm," work in a good dressing of "Vaporite" as trenching proceeds, and when finished tread down the soil firmly and allow it to settle for a week or ten days before planting. The most effective method of planting is in borders solely devoted to themselves, being careful when planting to arrange the plants so as the colours won't "clash" when in bloom. They may also be planted in groups of three to four plants throughout the mixed borders. Planting may be done in mild localities and on warm soils from October to February, so as to give them a good hold before warm weather returns: but on cold clay soils it is much better to defer planting until early in March, as the Phlox strongly resents dampness around the roots. During the winter months place the plants two and a half feet apart, and when the shoots appear above ground guard against slugs by placing a ring of dry sand or soot around each plant, and thin out the shoots to five on each plant when the plants are two years old. Lift the crowns every three years, divide, and replant the outside portions for future stock in newly prepared ground.

During the summer attend to staking. Use green painted bamboo canes, tying each shoot out separately, and in dry weather they must be well watered and given a good mulch of manure around the roots at the end of May. Give liquid manure and soot water twice weekly when approaching the flowering stage, and remove faded pips when they appear, which leaves space for fresh ones to develop and also prolongs the flowering period. As the flowers pass away, remove the old flower heads, when they will bloom again and continue until destroyed by frost.

Phloxes are readily propagated from cuttings, and a very good plan is to insert the young shoots taken from the plants when thinning them out

in spring, and if rooted in small pots in a cold frame and kept shaded until root-action has taken place, they will make splendid plants by the autumn for planting out in the borders, and insures one having young, vigorous stock at hand when needed.

The following are a selection of up-to-date varieties which may be relied upon to give satisfaction:—

Lindfield Beauty, old rose pink and white centre, extra: Princess Royal, purple, giant flower: Scarlet Gem, orange scarlet, compact: Princess Marie, rose pink, beautiful flower and truss: Arthur Ranc, bright salmon, massive truss: Sir Edward Grey, velvety crimson, massive truss: Queen Alexandra, pale blue and mauve, large truss: Rowena, white suffused heliotrope, pretty: Maurice Vachon, darkest purple, splendid: Rijstroom, salmon red, immense flowers: Meteor, bright rose pink, very large truss: Jules Cambon, rosy mauve, white star centre, pretty: Mauve Queen, mauve, largest and best mauve: Hervor, carmine rose and white star centre, pretty: Gloire du Mare, blue, suffused violet, splendid: Fire King, fiery scarlet, very attractive: Frau Antonin Buchner, purest white, finest in cultivation: Ellen Willmott, French grey, lovely flower: Corallina, salmon pink, splendid: Dr. Konigshofer, scarlet, one of the best: Elizabeth Campbell, old rose and white, one of the most beautiful: Border Beacon, carmine, monster truss: The Queen, French grey, very large truss: Rheingau, white, dark bluish centre, striking: M. Graham, rose self, large truss: Braga, rich lilac rose, large truss: America, salmon pink, extra large flowers: Maid of Honour, white, suffused red in centre, large flowers: Africa, carmine and purple centre, splendid: Jules Verne, rich blue, beautiful: Tambour de Wattignies, mauve and white star centre, striking: Asia, old rose, suffused lilac, giant flowered: Aurora, salmon, suffused orange red, giant truss: Flora Hornung, white and large carmine eye, beauty: Aegir, bright scarlet, stand sun well: Frau R. Vopelius, white and purple red eye, very pretty.

[We have to thank our correspondent for a box containing large cut sprays of Phlox in many choice varieties. Their robust and healthy growth shows evidence of good culture, a fact borne out by Mrs. Keith receiving a silver medal and cultural certificate for a collection of this showy border flower at the Stillorgan and Fox-rock Society's Show.—ED.]

"Sleepy" Pears

THE disease known as "Brown Rot," caused by the fungus *Sclerotinia fructigena*, acts on the fruit in two different ways. When infection from spores is local on the surface, the "Brown Rot" condition results, and the disease is confined to local patches. When infection takes place through the apical end of the fruit, the mycelium permeates the whole of the fruit, and produces the condition known as "sleepy." Such infected fruit does not decay, but becomes dry and mummified, and produces a crop of spores which disseminate the disease the following season. To prevent this, all diseased fruit should be carefully collected and burned. An effective remedy is to spray with weak Bordeaux mixture when the young fruits have set and at intervals afterwards.

Early Flowering Chrysanthemums

GARDEN CHRYSANTHEMUMS possess a beauty and freshness all their own, flowering, as they do, in the autumn months when most other flowers are wearied or gone. Compared with the days when Madame Desgrange and its yellow counterpart were the chief varieties, there is now a wonderful selection and, as everyone can grow them with ease, they are an invaluable asset. Those who have not tried any of the newer varieties are astonished at the fine large blooms produced on stout erect stems, the charming and comprehensive range of colours now available and the perfect profusion of blossom. Few of these newer sorts exceed a couple of feet in height, and they are beautiful for garden decoration as well as being delightful for cutting from August until cut down by frost.

Varieties are so numerous that only a few can be touched upon here. Pink is a favourite colour in any flowers nowadays, and quite a number of good things in this way have been introduced in garden Chrysanthemums. James Bateman, although not now new, is hard to beat, the flowers are of a charming soft pink, good in size, and the plant remarkably handsome in habit, commencing to bloom in August. Normandie and Provence follow, the former soft flesh pink, and the latter coral pink with good broad flowers. Of the mauve pinks, Belle Mauve is capital, with very large broad petalled flowers borne rigidly erect in September. Of early white kinds there are several worthy of note. La Parisienne, with its feathery Japanese blooms, begins in August, as also does Caledonia, a solid flower with incurving central florets. The new Framfield Early White has large deep graceful flowers of the purest white, and a good stand-by for mid-season cutting is Esperance with long-stem white flowers, the centres greenish-yellow and incurving. Amongst later whites, Countess is very choice and handsome, and should be disbudded. The old White Quintus, although of taller growth and smaller in flower than the newer race, is a grand garden decorator, with pyramids of snowy flowers in October and November.

It is still a question whether Horace Martin has been superseded amongst the earliest yellows. It is certainly the best of the Masse varieties, which are now being slowly ousted from their former pride of place. Golden Diana is a new pure yellow sport from Diana, and obtained a first-class certificate from the National Chrysanthemum Society. The well-known Carrie and Champ d'Or are not worth growing when one can have Leslie, the best mid-season yellow and good all round. Golden Glow is an acquisition where tall kinds are required, it grows about 4 feet high and is appropriately named, with handsome flowers of a brilliant golden yellow. Mercedes is a grand yellow for October. Before passing from yellows, mention should be made of the old favourite Flora, the pretty dwarf pompon, which continues flowering all the season by reason of the numerous suckers which succeed the summer growth. It is a dependable variety for massing or for edging a bed of taller kinds and is also used in window boxes.

Bronze Goacher is a beautiful orange-bronze

sport from Goacher's Crimson, which, by the way, still easily holds its own amongst crimsons; Chatillon is a very pretty combination of orange and ochre yellow with large flowers of great beauty, Cecil Wells being a newer kind of somewhat similar colouring. The lovely orange Polly and its improved form are quite unrivalled, and Abercorn Beauty, a deep bronze sport from Polly, is one of the very brightest and richest, commencing to flower in August. Harrie is a beauty of the Polly type, with equally large flowers, bronzy-orange on a gold ground. The new Crimson Polly is a fine chestnut crimson with gold reverse, and for a late flower of similar colour Almirante is a king in October, when its large handsome flowers on long stems may be seen on sale everywhere. It "lights up" well in artificial light, and should be disbudded. Firefly and Kuroki are good bright reds for September.

The single-flowered early Chrysanthemums are also beautiful, although this class is not as yet so fully developed as the doubles. Surrey is one of the very best singles, a lovely shade of salmon-ecruse; White City is a good broad white; Gem of Merstham, deep crimson; Brazier's Beauty, a lovely soft blush; Kate Carter, salmon, shaded chestnut, with a yellow zone; Dominion, salmon-red. All these range from 1½ to 2½ feet in height, and are beautiful for cutting in sprays.

Cultivation, both of the doubles and singles, is of the simplest. Plants rooted from cuttings in boxes or pots during early spring should be planted out in a frame as soon as strong enough, and gradually hardened off till early in May, when they should be lifted with good balls and planted out at about 2 feet apart in ground which has been dug deeply and well manured. A stout stake should be placed to each plant and the shoots tied as they grow, pinching them once or twice to make the plants bushy, but not after the end of June. They should be thoroughly watered once a week in dry weather. Soot water is good; a small bag of soot should be placed in a tub of water and used when the colour of weak tea, but not over the foliage. To protect from slugs, dust some freshly slaked lime round each plant; crushed oyster shell does well, as slugs cannot crawl over it.

J. M. W.

Bulbs in Bowls

By MAY CROSBIE.

UNQUESTIONABLY the value of a well-grown bowl of bulbs for indoor decoration is well worth the trouble and cost, quite apart from the interest and pleasure of growing them; so a few hints as to how it is done may be of some use to those who have not already attempted it.

Before ordering the bulbs, collect all available bowls and decide what to put in each of them and how many it will take to fill the bowl. Any bowls will do, but they should be at least three inches deep; the shallow ones can be kept for the small Crocus bulbs and the deeper ones for the large Hyacinths and Daffodils. As to colour, green looks best of all, and if any have to be bought I should certainly recommend green; but as long as the colours of the flowers do not clash with the colour of the bowl, it does not

matter: and a blue Chinese bowl is excellent for Daffodils, and any bright pink, red, or mauve bowl can be used for the Roman Hyacinths or Paper White Narcissus.

Buy your bulbs from a reliable source and get them planted in their bowls early in September. Crocuses, Roman Hyacinths, Daffodils, and ordinary Hyacinths are all easily managed, and give a wide range of colour to choose from. Tulips are best not attempted by a beginner the first year. Roman Hyacinths are the earliest to flower, and are indispensable. Crocuses in blue, mauve, purple, white, and yellow are excellent. Buy the largest bulbs you can, and keep each colour in a separate bowl. Pink and pale blue Hyacinths are particularly useful, and all varieties are equally good.

The best varieties of Narcissus are the Paper White Narcissus, Tenby, Princeps, Henry Irving, Sir Watkin, Emperor.

Of Tulips, the best kinds are the Duc van Thol and the early singles—La Reine, white; Proserpine, rose; Mon Tresor, yellow; Le Matelas, pink. The bulbs may be put quite close together in the bowls, as close as they will fit without actually touching one another; it is hard to give a definite number,

as so much depends on the size of the bowl, and the best plan is to put in as many as the bowl will hold, but the least number is five Roman Hyacinths, six Daffodils, six Crocuses, three ordinary Hyacinths, and five or six Paper Whites would be wanted to make a show—indeed, twelve Crocuses are none too many.

There are several special mixtures, such as "Bulbolin," sold for growing bulbs in: all seedsmen stock them, and they are excellent, cheap, and clean to use, and can be strongly recommended, but I have seen excellent blooms grown in such different mediums as sand, gravel, peat moss, fibre left after loam is riddled, &c., but with any of these it is as well to mix a little charcoal. Whatever material is used it should be damped before putting it in the bowls. For the large bulbs, about half fill the bowls with it; the bulbs should be sufficiently deep so as there will be only about half an inch of the top left above the surface of the bowl. Fill in between the bulbs with the mixture, pressing it just sufficiently to keep them in position. On no account ram it tight, as if this is done, the bulbs will be shoved up by the force of the roots trying to

penetrate the rammed mixture. For Crocuses the bowls may be filled to within one inch of the top before they are put in. Keep the surface level, and when all are finished water them well with a fine rose can. Leave them for a quarter of an hour or so, so that all the water possible has been absorbed, then turn the bowls on their sides to drain off any superfluous water there may be.

Put them all in a cool dark cupboard or shed: it should not be hot, but ought to be frost-proof. There they remain for at least six weeks to form their roots. Look at them once or twice, lift them and give any that feel light some water. Bring in the Roman Hyacinths and Crocuses in about six weeks to a sunny window in a warm room: the others can be left a couple of weeks

longer. If there are two bowls of Roman Hyacinths, keep one in the dark longer than the other and it will come into flower later.

By the end of November all ought to be brought to the light, and once they begin to grow keep them turned. If the room they are in is a very warm one, they will want watering every few days, but again always judge by their weight, as the surface soil may look and feel dry while there is really plenty of moisture underneath,

and it is fatally easy to overwater, as there is no way for the superfluous moisture to run off.



THUNBERGIA NATALENSIS

Thunbergia natalensis

THIS charming South African species seems to be a plant unknown to many, even to those who have a wide acquaintance with good gardens. It is not perfectly hardy, although in the warmer parts of the British Isles it should succeed without any protection. It grows from three to four feet high, and is very pretty during the summer with its large, horizontal drooping flowers of pale blue, the tube of which is rich yellow.

In the Botanic Gardens, Cambridge, a mass of this beautiful plant has been growing against the wall of a cool greenhouse for some years, where, except for a covering of rough litter during very severe weather, it gets no other protection. It is very attractive for some time, commencing to bloom in July, and a succession of flowers is maintained for two months or more.

F. G. PRESTON.

Cyclamen

In 1731 *Cyclamen persicum* was first introduced to this country, and since that date, particularly during the last fifty years, rapid progress has been made in the size, colour, and general habit of this plant. In these days of outdoor gardening our greenhouses are given over to those subjects that produce a good display during the winter months. To my mind, this is as it should be, as flowers are always prized in the greenhouse when they are scarce in the open ground.

Many leading firms pay special attention to the Cyclamen, and offer quite a series of beautiful forms. A few of the most noteworthy are Giant White, Scarlet, Salmon-pink, and Cherry-red, while the mixed strains from a reliable source are sure to give the greatest satisfaction. Cyclamen always make a table look bright and cheerful, but if the flowers are pulled from the corm it will be necessary to cut off the base of the stem, or the blooms soon droop and die. The subject under notice is propagated by means of seeds, which germinate somewhat slowly and irregularly, but if sown directly it is ripe these little difficulties are partly overcome. As a general rule a seedling will flower in eighteen months, but this, of course, depends upon the treatment given. For producing a display in early spring the seed can be sown in September or October, and for winter work a sowing should be made in June or July.

The seed should be sown thinly in a compost of loam, leaf-mould, and sand, the whole being put through a sieve with a quarter inch mesh. Place in a warm pit and never allow the soil to become dry. When the seedlings have made a tiny bulb or corm they must be given a separate existence, and pots known as long thumbs will suit them admirably. Grow on in a warm, moist house, keeping them close to the glass and the surface soil free from all lichen growth by occasionally pricking it over with a pointed label. Care, however, must be exercised to prevent any injury to the tiny roots.

As growth advances and the "thumbs" are filled with roots, each plant should be moved into a 48 or a 4½-inch pot, adding a little dried rotten cow manure to the soil quoted above. During the summer months a little shade will be needed from the direct rays of the sun, and after flowering a partial rest is allowed in a cold frame or cool greenhouse. Some years ago a very decided rest was given, but this is rather the exception than the rule in these progressive times. When the corms reach the stage of what may be termed partly dormant, the soil should be shaken from the roots and the plants repotted in new material. Make the compost tolerably firm, and arrange them in a cold frame until the autumn, when a shelf in the greenhouse can generally be found for them. Here or on the stage they will flower, and if the grower has done his part, a good crop of bloom will be the result. Greenfly is the principal insect pest, but it can easily be destroyed by vaporising the house or frame with "X.L. All" or some other fumigant.

The chief factors in Cyclamen culture include a sweet and open rooting medium, good drainage, cleanliness, careful watering, and a congenial temperature while in active growth. T. W. B.

The Aftermath of the Rock Garden

By the middle of July the heyday of the rock garden is over, and one begins to wonder what is going to carry on the interest for the next few months. August is proverbially a bad month in the rock garden, but there is no inherent reason why it should be so, as a reference to the list below of plants in flower here on August 20th will show. It includes both plants which naturally flower late and those which continue flowering for a long period, with a display perhaps not so great as in the early year, but welcome nevertheless. Among these latter are such plants as *Erodiums*, which flower for a long time, especially the charming *E. Reichardii*, which has now been in flower three months; also *Helianthemums*, which, if cut back after the first flowering, give quite a good show at the present. Again, by selecting suitable positions, many plants which flower earlier can be induced to withhold their bloom for some weeks, e.g. in my garden *Linum monogynum* in a hot position flowered in June, whereas plants in a partially shaded and very exposed corner were unable to make satisfactory growth till late in the season, and are only just in full and acceptable bloom.

Among autumn bloomers the Heaths must be mentioned, and the smallest garden should possess a few.

But it is not wise to depend entirely on flowers for delight and interest, and to those who find an interest in form and foliage, the present comparative lack of flower gives leisure to admire such things as the *Sempervivums*, the silvery *Achilleas*, that most beautiful plant, *Artemisia lanata* var. *pedemontana*, a mass of silver foliage, most exquisite in early morning when covered with dew, and many other delightful plants which can be grown in the smallest garden.

I have included a few shrubs and sub-shrubs in the list, for these are always welcome in the rock garden.

Flowers in bloom at Sandymount, Co. Dublin, August 20th, 1914.

Primula capitata, *Sedum spurium*, *Campanula carpathica*, *C. excisa*, *C. velutina*, *C. acutangula*, *Veronica corymbosa*, *Hypericum reptans*, *Silene Schaffta*, *Lysimachia Henryi*, *Antirrhinum glutinosum*, *A. Asarina*, *Zauschneria californica*, *Fuchsia pumila*, *Erica tetralix*, *E. cinerea alba* major, *E. vulgaris Serlei*, *Parnassia caroliniana* (in bud), *Houstonia cærulea*, *Viola Bosniaca*, *Linum monogynum*, *Viola Papilio*, *V. florariensis*, *Oenothera Nuttallii*, *Achillea Kellereri*, *Mimulus primuloides*, *Geranium argenteum*, *Campanula bavarica* major, *Erodium corsicum*, *E. Reichardii*, *E. macradenum*, *Papaver alpinum*, *Linaria alpina*, *Wahlenbergia vineiflora*, *W. albo-marginata*, *Asperula hirta*, *A. suberosa*, *Convolvulus mauritanicus*, *Geranium Wallichianum*, *Dianthus polycladus*, *Tunica Saxifraga*, *Potentilla Friedrichseini*, *Androsace lanuginosa*, *A. lanuginosa alba*, *Onosma albo-rosea* (in bud again), *Viola gracilis* hybrid, *Campanula isophylla alba*, *Salvia Grahami*, *Plumbago Larpentea* (in bud).

Sandymount.

E. B. ANDERSON.

Acantholimon venustum

ALTHOUGH there are about a hundred recognised species of Acantholimons, only a comparatively small number are cultivated in gardens. These are all delightful subjects for the rock garden, and well worth a place and any attention they may require. Without doubt the gem of the whole genus is *Acantholimon venustum*; this handsome Prickly Thrift has narrow foliage somewhat resembling a *Dianthus*, which in the early stage is quite soft, but as it gets older becomes stiff and rigid and very sharp at the points. It forms thick, close growing tufts which are of a slightly glaucous shade, and that alone is very ornamental, while in July it produces an arching sprays, from eight inches to one foot in length, its bright rosy-pink flowers, with a rich cinnamon coloured calyx, which finally develops into a saucer-shaped frill, prolonging the beauty of the plant after the flower is over.

It is a very slow-growing plant, and not so readily increased as some plants. Seed is undoubtedly the best means when it can be obtained, but seldom if ever does it mature in this country. Layering is a reliable means if outstanding pieces are pegged down,

placing a stone on top to retain the moisture, and left for a year and then taken off and potted up.

Cuttings are also a means during July, and I have heard that a good percentage can be obtained by putting pieces of the old growths in about October, but this method I have not yet tried, while good plants can be obtained from root cuttings.

It requires a sunny aspect in deep, well-drained soil, composed of loam, leaf-mould, with a little old mortar rubble added. There appears to be several forms, one having erect spikes, the one illustrated being pendulous, while occasionally one meets a broad leaf form. It is a native of the Cilician Mountains, growing at an elevation of from 4,000 to 7,000 feet, and was introduced into this country about 1873.

The illustration was taken of a plant (twenty inches in diameter) growing on the rock garden in the Botanic Gardens, Cambridge, where the conditions appear to suit this handsome class of plant. Apart from this one, there is also a fine plant of *A. acerosum*, over thirty inches in diameter, as well as other fine specimens—

almost as large—of other species, growing on a sloping wall against a bank, which seems to be the ideal spot for them.

F. G. PRESTON.

Freesias

THERE are many bulbs suitable for greenhouse work, but few can equal the *Freesias* for their delicate fragrance. They are natives of South Africa, and are of easy culture. With proper treatment they will flower annually, and the stock can be increased by the numerous little side bulbs that are formed each year. At the present season they should be repotted in a compost of loam, leaf-mould, rotten cow manure, and silver sand. Five and six inch pots are a convenient size, and either should be filled one fourth

of their depth with drainage. Before commencing operations the bulbs should be graded into three lots and then repotted, keeping each lot separate.

About eight large bulbs will be enough for a five-inch pot, and a dozen for a six-inch, while the smaller bulbs must be treated in accordance to their size. The bulbs should be planted $\frac{3}{4}$ inch deep. The pots are then placed in a cold frame, and for the time being will only need protection



ACANTHOLIMON VENUSTUM

from heavy rains. As growth advances, attention must be paid to the staking to prevent the shoots from breaking down, and in November the first batch can be gradually inured to warmth, and finally given a light, airy position in the greenhouse.

If a quantity is grown, a succession of flower can be kept up for some months. When first potted water ought only to be afforded in small quantities, but when root action is vigorous the supply can be increased with advantage. After the flowering season is over, the plants must be watered until the foliage begins to decay. At this stage water is gradually reduced, and then withheld, and the pots are stood upon a shelf fully exposed to the sun to thoroughly ripen the bulbs for another season.

A great advance has been made with *Freesias*, and the hybridist has produced some grand acquisitions which will be largely grown when they become more plentiful. For the present I content myself with the good old varieties, *F. retracta*, *F. refracta alba*, and *F. Leichtlini*.

T. W. B.

Eryngium spinalba.

MORE than thirty years ago I was in search of the true *Eryngium spinalba*, the best of the Sea-hollies for its shape and appearance. All the botanic gardens of the world sent me for it—either the common and very ugly *E. campestris* or one of the forms of *planum* or of *creticum*. I never found in any of the numerous gardens I visited the right and true *E. spinalba*, which I only saw in the herbaria, and which I had myself in my own herbarium.

So I went last year to the South Dauphiné, in a very disagreeable corner called Mont Auroze, and, after a rather tiresome journey in the desert, I found my plant, illuminating the country just like elegant silver candelabras. It is a dwarf plant, not exceeding more than one foot in height (perhaps two feet in some good soils), and perfectly white (in some cases bluish-grey), and of which the involucre is the most exquisite thing I had ever seen. It is much more delicately cut than that of *E. alpinum* (the best of all, after my Dauphiné find), and very hard and stiff. Those who like the thistles will value it greatly, for it is the best of all the spring thistles.

I took a good lot of seeds of it, sowed them at once on my return home, and got, three weeks after,* thousands and thousands of very good plants. It has not yet flowered, but I hope it will do next year. Then I shall send you a plant to be drawn in your paper.—H. CORREYON, Geneva.

The Dwarfest of The Brooms— *Genista Villarsii*

ONCE found in the very hard rocks of the Verdon Valley, in the north of the Var département, a very dwarf and tiny plant, with an appearance like that of a creeping and low *Equisetum*. The plant was hardly two centimetres high, and seemed sometimes rather more like a small moss than a phanerogam. I tried to take it out of the narrow crevices, and discovered it was a little shrub of the Leguminosæ family, but I could not realise what it was, as the little twigs were articulated (or seemed to be) like those of *Ephedra* and of *Equisetum*. I took some plants with me (those I could get out of the rock, and this was very hard), and when it flowered, I found it was the rare and delicious little *Genista Villarsii*, *Clem. (G. humifusa of Villars)*, one of the rarest plants of the Alpine chain, a little gem which is only to be found in the south-east of France, in Dalmatia, and in Montenegro. It is hardly an inch high when found in nature (sometimes, in good soil, of course, it grows to 10–20 centimetres), and keeps its dwarfness in cultivation. In June and July it is covered with yellow flowers, which adorn it beautifully.

Its relative, *Genista horrida*, of South Europe, is a beautiful Broom too, but rather tender and much taller than *G. Villarsii*.—H. CORREYON, Geneva.

* This is to be noted and considered; the *Eryngiums* are known for being some of the plants of which the seeds are the most slow and difficult to germinate but as I always wrote and said, if you sow immediately after they are ripe the seeds of such difficult plants to germinate, you can be sure that they will come up at once.
H. C.

Saxifrages or Rockfoils*

THE object of this book is to help the rock gardener to become acquainted with the most important members of the family, to choose the best varieties and, having chosen them, to grow them successfully.

The authors are both well known by their former works. The artistic half-tone reproductions from Mr. Malby's photographs are most pleasing, and many are instructive by showing the site or position in which the plant should be grown, while there are also some good coloured reproductions.

Mr. Irving has charge of the Kew collection of Alpines, so is particularly well qualified to deal with these plants. He informs us that there are nearly 400 species—i.e., excluding the numerous varieties and hybrids, the latter become still more numerous and puzzling year by year.

The Saxifrage family is botanically divided into fifteen groups, an illustration of each type is given, but a short description giving the characters which divide these groups from one another would have been of great help to the student.

The first chapter tells us of the wide distribution of the Saxifrage over the whole North Temperate Region and how Burser's Saxifrage starts flowering in January, other kinds following closely, while *Sax. Fortunei* and *Cortusaefolia* bring up the rear, until their autumn flowers are cut down by the frost.

Chap. II. starts with Encrusted Saxifrages, giving a description of each species and treating them in alphabetical order, and so each different group receives similar treatment in the following chapters.

A useful chapter is written on the hybrid Saxifrages, giving their parentage when it is known. Mr. Malby then follows with "Saxifrages in the Rock Garden," giving many valuable hints on where to plant and how to grow these plants. Mr. J. H. Salter, D.Sc., concludes with most interesting notes on "Saxifrages of the Pyrenees," and tells his readers that "Saxifrage Aizoon is very much at home in the Pyrenees wherever calcareous rocks prevail; on the other hand, *S. Cotyledon* need only be looked for upon granite, while *S. longifolia* is just as emphatic in sharing the preference of *S. Aizoon*."

The letterpress is clear and good, and this new book should be helpful and instructive to all rock gardeners.

"King Beech" in Knowle Park, Kent

THIS remarkable tree has a bole 30 feet in circumference at 5 feet, and is about 100 feet high, containing as much top as three or four ordinary trees. The late Countess de la Warr, when residing at Knowle, took the precaution of having some of the boughs tied by iron chains to guard against winds. The ground here seems favourable to the growth of giants, for there is an old oak about 300 yards west of the King Beech which was known as the "Old Oak" two and half centuries ago. It is supposed to have been old enough to have sheltered barons and knights of the era of the elder Plantagenets on their excursions across the extensive forests of which this park must have formed a portion.—ELYRIA KIRBY.

* "Saxifrages or Rockfoils," by Walter Irving and Reginald A. Malby. F.R.P.S., published by Headley Bros., Bishopsgate, London, 2s. 6d. net.

Department of Agriculture and Technical Instruction for Ireland

SPRING FEEDING FOR STOCK.—EFFECT OF THE WAR.

THE attention of farmers is directed to the possibility of feeding stuffs being scarce and dear next spring. It is to be borne in mind that, apart from the present situation, the hay crop is light and the turnip crop doubtful. Moreover, much of the grain which in ordinary circumstances would be fed to stock may be better utilised as food for human consumption, and particularly for seed, of which more than the usual quantity may be required.

A great deal can be done to provide food for stock next spring by sowing now the following winter crops:—

- (1) Giant Rape;
- (2) Giant Essex rye;
- (3) Winter vetches, with either rye, winter oats, or winter wheat;
- (4) Italian rye grass.

These may be sown during this month after the following crops:

- (1) Early or mid-season potatoes;
- (2) Oats or barley;
- (3) Flax; or
- (4) Grass.

GIANT RAPE may be sown after all the crops mentioned; after potatoes all that is required is to sow the seed and harrow the land; after other crops the land will require to be ploughed and harrowed before the seed is sown, and then the seed covered by harrowing again. The seed should be sown broadcast at the rate of 7 or 8 lbs. per statute acre.

GIANT ESSEX RYE may be sown after all the crops mentioned. The land will require to be ploughed; the seed may then be sown and harrowed in the same way as for oats. Seeding should be at the rate of 16 stones per statute acre.

WINTER VETCHES may follow all the crops mentioned. The land should be ploughed and the vetches sown broadcast as in the case of an ordinary grain crop. Along with the vetches should be sown either rye, winter oats or winter wheat; the rate of seeding should be about 8 stones of vetches and 4 stones of grain per statute acre.

ITALIAN RYEGRASS will give the best results when sown after potatoes. The seed may be sown broadcast at the rate of at least 3 bushels per

statute acre, and covered by harrowing lightly.

AUTUMN MANURING.—After potatoes no manure need be applied. After oats, barley, flax or grass, if possible a dressing of dung should be ploughed under. If dung is not available, artificial manure should be applied after the land has been ploughed and cleaned, and before sowing the seed. A suitable manuring for all these crops is 3 or 4 cwt. superphosphate and 2 cwt. kainit; or 5 cwt. potassic superphosphate per statute acre.

SPRING MANURING.—To ensure a successful and early crop it is essential that a dressing of 1 cwt. of nitrate of soda per statute acre should be applied in February in every case.

To sum up:—(1) Sow during August, or at the very latest early in September. (2) If possible, apply farmyard manure in all cases except after potatoes. (3) Apply nitrate of soda in February. (4) Secure from the Department of Agriculture a copy of leaflet No. 80 which gives fuller particulars regarding catch crops.



RESTIO SUBVERTICILLATUS.
Six feet high, at Castlewella, Co. Down.

Restio subverticillatus.

THE *Restio* belongs to a small natural order called Restiaceae and is closely related to the *Cyperus* and sedges.

The botanical name comes from *restis* a cord, alluding to the use of the plants in South Africa,

their native country. In gardens it is also known as *Wildenovia teres* and the Rope Grass.

Restio subverticillatus is a rare plant, usually grown in a cool greenhouse, except in favoured localities. Our illustration is taken from a fine specimen, six feet high, and as much in diameter, growing outside in the Castlewella Gardens, Co. Down.

Under such conditions it is an exceedingly graceful and distinct plant, throwing up bamboo-like rods from the base, which in their second year become feathered with fine green side shoots springing from brown sheaths.

Mr. T. Ryan writes to say that in September the *Restio* was flowering freely, "the flowers are whitish, rather like a meadow grass, with abundant pollen, and the numerous flowers make the plant very noticeable at this season of the year."

The *Restio* may be propagated by division, and at Edinburgh, where it is grown in a greenhouse, small roots sometimes form at the base of the side shoots within the brown sheaths, and these pieces when taken off to form new plants.

The Month's Work.

The Flower Garden.

By WM. G. WADGE, Gardener to Lady O'Neill,
Shanc's Castle, Antrim.

THE work in this department depends much on the weather this month. We are usually visited with strong winds about this time, and, as some trees have begun to cast their leaves, a good deal of tidying up will be called for. Make Dahlias and all tall-growing plants secure against storms. Endeavour to keep the flower beds bright for a few weeks longer by removing all flowers and leaves as they wither, and by keeping the surroundings neat. We may get frost this month. Sometimes there is a few degrees, just sufficient to blacken Begonias and Heliotrope, without disfiguring Geraniums and other things. If some beds are planted with the former subjects, it is advisable to cover them when the temperature falls low in the evening, as one or two beds blackened spoils the effect of the whole; besides, it often happens after one such frost we get quite a long spell of mild, bright weather. Get off all the cuttings necessary without delay, so that when a wholesale clearance of the beds is called for it may be expeditiously carried out. If Annuals are wanted to flower early next season, sow seeds now.

Continue propagating Violas, Pansies, Calceolarias, Antirrhinums, Penstemons, Veronicas, *Andersonii variegata* may all be rooted in cold frames and left there all winter. Select cuttings from young sappy growths, rejecting hard woody pieces. Keep the frame damp and shaded and fairly close till rooting takes place; then inure the young plants to air and sunshine, and ventilate freely at all favourable times during the winter. Other subjects, such as *Alternanthera*, *Iresine*, *Salvias*, *Coleus*, *Heliotrope*, *Verbena*, and *Mesembryanthemum* require a frame or house with a gentle heat. This class of plants is readily increased in spring, so it is not necessary to keep a big stock. I prefer pots to boxes for cuttings of this latter class of plants.

CARNATIONS.—These layered in July are well rooted. They should now be severed from the old plants and lifted. Planting direct into their flowering quarters gives least trouble and best results if the soil is well drained. If experience has shown that the local soil and climate is unfavourable for wintering in the beds, either pot them in three-inch pots and place in a cold frame, or prepare a raised bed of soil, adding a liberal quantity of sand and some lime rubbish from an old building, and plant the layers close together in this. They may remain here till spring, and then be planted in other beds in the usual way. In either case it is wise to pot up a few plants to replace any casualties.

PLANTS IN TUBS.—If some light, protective material can be kept in readiness to place at night over Myrtles, Agaves, Bays, &c., they may remain outside during September, otherwise they must be housed. Freely ventilate the house after they are taken in. Any specimen plants used in the bedding that it is thought desirable to keep over for another season will need the same protection.

VIOLETS.—Keep the runners cut off and the plants watered when necessary with manure water. Towards the end of the month transfer the plants to winter quarters. Do not plant too high in the frame. Let there be a few inches between the foliage and the glass. They can be planted fairly close together, as the plants will not increase much in size after moving them. Water through a coarse rose to settle the soil. Shade for a few days during the brightest hours, then give all the air and light possible. Never shut the lights down close except during severe weather. When further watering is necessary, let it be done early in the day.

BULBS.—If the bulbs of *Narcissus* forced last spring, or any lifted from borders, were dried off, they will do well for planting in the grass. Scatter the bulbs broadcast, and plant them where they fall. This method will result in a natural appearance at flowering time. If a supply of bulbs is to be bought, order them forthwith, and the earlier they are placed in the soil after delivery the better.

THE SEASON.—The summer of 1911 must be written down as not favourable from the flower garden point of view. The drought and harsh wind which prevailed during planting time and after was against the plants making an early start into growth. April was such a dry month that the sub-soil had got dry, and the few showers that fell in June and July were not sufficient to reach the roots of the plants. Where an adequate water supply has been available, doubtless good growth has resulted, as there has been no lack of bright sunshine. Flowering shrubs have flowered freely, partly consequent on the wood being well ripened last autumn. *Phlox* quickly passed out of flower. *Anemone japonica* and *Lobelia cardinalis* are dwarfer than usual. *Chrysanthemums* do not grow nor flower so freely during a drought as they do in a more showery season.

The Fruit Garden.

By PETER BROCK, Horticultural Instructor for
Co. Fermanagh.

THE thunderstorm on the 14th inst. brought a much-needed drenching rain, which lasted for several hours and has refreshed and improved the condition of all kinds of fruit trees and bushes.

The marketing of such fruits as require to be disposed of direct from the tree must, as they become fit, get first attention. Choice fruit should be very carefully handled so as to avoid bruising, which quickly shows in black spots or streaks and reduces its market value. First-class dessert apples, like *Lady Sudeley*, when carefully graded and neatly packed in attractive packages, command good prices. Early autumn pears and plums fit for dessert pay well for a little extra care in grading and packing in neat packages. Early cooking apples, such as *Early Victoria*, should be cleared off early this month, then first pickings of the largest fruits of *Grenadier* will also be in demand.

THE FRUIT ROOM.—There is nothing more detrimental to the flavour and keeping of fruit than storing it on foul, musty shelves bearing traces of former occupants having decayed. Lime-washing the walls and thoroughly scrubbing the stages or racks with warm water and soap, afterwards rinsing with clean water and exposing

to the sun till thoroughly dried, has a sweetening effect which goes a long way in eradicating the germs of diseases which operate on fruit after storage. The fruit-room, to keep it in the best possible condition, should have both a spring and an autumn cleaning. Moveable shelves or racks that can be conveniently scrubbed and aired periodically are the most suitable.

STORING FRUIT.—Towards the end of the month, especially in early districts, some of the mid-season apples and pears requiring short storage may be fit to gather. The changing of the pips from white to a brownish tinge indicates the approach of maturity. If left too long on the trees after reaching this stage, a large percentage may be knocked off by wind. In gathering choice fruit take them one at a time, and lay them carefully in padded baskets or on trays. Some delicate skinned apples are more easily injured than eggs. With proper step-ladders and small, padded baskets fruit from high trees can be safely gathered and lowered with cords. No fruit which falls from the tree should be stored with those that are hand-picked; they should be placed with the wind-falls for immediate use.

INSECT PESTS.—Trees which are infested with apple-sucker should, immediately they are cleared of fruit, be sprayed with lime-sulphur at a strength of one gallon commercial lime-sulphur to forty gallons of water. Apply the spray in a very fine mist, directing it upwards, so that the underside of the leaves may be coated with the sulphur. Avoid spraying to the extent of causing it to drip from the trees, as excessive spraying is not so effective in coating the leaves as when it is evenly dewed in a very fine mist.

STRAWBERRIES.—The land is now in the right state of moisture for planting carefully prepared runners. Plantations formed last month should now be well established, and will derive great benefit from a good dusting with soot. Nip off runners as they appear, and keep the surface well stirred with the hoe. New plantations may still be formed; providing that good plants are available and that the land has been properly prepared for them.

PREPARATIONS FOR PLANTING ORCHARDS.—This is a good time to begin to prepare land for autumn planting. The profit derived from orchards is, in most cases, very largely controlled by the state of the land when the trees are planted. It is of the utmost importance to have land which is intended for orchards thoroughly cultivated sometime before planting operations begin. This month is generally the best in the year for heavy work on land, if it is not baked by long drought, it is invariably in good condition for carrying out deep cultivation to the best advantage.

The Vegetable Garden.

By ARTHUR HORTON, Gardener to Colonel Claude Cane, St. Wolstan's, Celbridge.

CAULIFLOWERS, AUTUMN SOWN.—Probably no vegetable is more appreciated than good cauliflowers in spring and early summer, when choice vegetables are extremely scarce. The present month is the most suitable time for sowing the seed. Complaints are made that plants from this sowing often button, consequently are useless. Unfortunately this is often too true, but the fault in the majority of cases is in sowing the seed too early. Undoubtedly better results

are to be obtained by sowing the seed in autumn than from plants raised in heat during January and February. It is always advisable to make two sowings, the first early in September and the next about three weeks later. If the weather conditions are favourable to quick germination and growth, the latter sowing will be found the most useful. The seeds should be sown broadcast in beds, not too thickly, and securely netted. When the plants are large enough to handle, prick out into frames, allowing a distance of about four inches between the plants. The soil must not be too rich or far from the glass. Keep the lights off on all favourable occasions, the aim being to make the plants as hardy as possible. Should severe weather prevail, it is most important to have the lights well covered with some suitable material. The most popular varieties for this sowing are Early London, Walcheren, and Autumn Giant, and which come in for use in the order named. Many of the latter variety often become blind after planting out, consequently it is advisable to plant fairly close in the lines to make up for this fault.

SPRING CABBAGE.—Seeds sown the latter end of July will be ready for transferring to their permanent quarters during this month, and should be planted on deeply dug and well manured ground on an early border if available. It is not advisable to make too large a planting from this sowing, as the plants are liable to run to seed, particularly so if the winter is mild. It is an excellent plan to draw out the young plants from the seed bed and dibble out in an open position about four inches apart, and defer the main planting until next month. By that time onions will be lifted, and no better site could be chosen for spring cabbage, as the ground for onions is generally well trenched and manured the previous spring, therefore all that will be required is a fairly deep digging unless manure is plentiful, which, unfortunately, is seldom the case. The distance to allow between the lines and plants must be gauged according to the variety grown. From eighteen inches to two feet between the lines and about twelve to fifteen inches in the lines will be ample for most varieties. In some gardens it is very difficult to grow good cabbage owing to clubroot. A sharp look out should be kept for this disease when planting. It is easily detected by knots or swellings on the root. Plants so affected should always be burnt. This disease is very difficult to eradicate once it gets a firm foothold. Good dressings of either gas or fresh lime applied in the autumn, leaving it on the surface a few weeks before digging it in, is one of the best methods of ridding the ground of this troublesome disease.

POTATOES.—If growth is completed it is advisable to lift the main crop, particularly so if disease has made its appearance. Nothing is to be gained by leaving them in the ground, as many of the tubers will get affected which if lifted in time might be saved. Select fine weather for lifting the crop, and leave the tubers on the surface until they get thoroughly dried before finally pitting them. The tops should never be left on the ground, but collected and burnt. Great care should be exercised in lifting the very smallest of the potatoes.

Clear the ground of all spent crops and weeds. The earthing up of celery should be done gradually and only on fine days. Spinach, turnips, and lettuce may still be sown.

Correspondence

DEAR SIR,—Are you aware that *Trama auriculæ* ever infests Dahlias? This morning I took off a large shoot of a Dahlia which had unfortunately been broken off just below the ground by the wind. The portion of the shoot, to which a little clay adhered, was simply a mass of the above pest. The Dahlias themselves do not apparently suffer, as we always have them excellent. But the Primroses which we planted along the edge of the border are threatened with extermination, and I have had to again remove a few choice old Pompadours which late last autumn I transplanted and washed with Quassia and tobacco water. I wonder can you or any of your subscribers say whether the neighbourhood of the Dahlias has been found to encourage this very serious nuisance or suggest a really effective remedy?

C. S. S. ELLIOTT,

The Rectory, Hacketstown, Co. Carlow.

Royal Horticultural Society of Ireland

At a special meeting of the council, held at the society's offices, 5 Molesworth Street, Dublin, on the 11th ult., it was decided, owing to the existing crisis, to abandon the holding of the Autumn Show. A balance sheet of the Summer Show was submitted and approved, accounts, including the prize list, being ordered for payment. It was further decided that the usual monthly council meeting, due on Friday, 14th ult., should not be held. The following were elected members of the society, viz. :—

Mrs. Bruen, Oak Park, Carlow, proposed by Mr. Jocelyn H. Thomas; Mr. H. Bill, Chapelizod, proposed by Major S. C. Hickman, D.L.; Miss Kelly, Seapark, Clontarf, proposed by the Secretary; and Mr. G. Doolan (practical), 11 Rushbrook Avenue, Belfast, proposed by Mr. W. S. Irving.

The Secretary begs to intimate that subscriptions of members joining now cover for the year 1915.



CAPTAIN W. HARCOURT WEBB, managing director of the extensive seed firm of Messrs. Webb & Sons, Ltd., of Wordsley, Stourbridge, who is with his regiment, the Staffordshire Yeomanry, has offered the Government some of their huge warehouses for purposes of stores or hospital work. The directors have also arranged to look after the families of all the their employees who may be called out.

It may be of interest to note that a class in Horticulture will be held at the Municipal Technical Institute, Belfast, two evenings each week, commencing Sept. 15, 1914. This class is designed to meet the requirements of gardeners, seedsmen and others who intend to sit for the National Diploma of Horticulture Examination to be held in June, 1915. All persons interested in Horticulture, whether amateur, apprentice, or professional gardeners, may attend the course, full particulars of which can be obtained from the Principal, The Municipal Technical Institute, Belfast.

Catalogues

THE issue of SUTTON'S BULB CATALOGUE for 1914, a copy of which has just been received, is a timely reminder that there must be no delay in forming plans for the coming season. To ensure a succession of flowers from November onwards, potting should commence as soon as the bulbs are obtainable. Roman and Italian Hyacinths, and early Narcissi and Tulips are especially valuable for cultivation in an artificial temperature, their fragrant blossoms being highly prized for all indoor decorative purposes in winter. Highly attractive though a comprehensive display in the conservatory or greenhouse may be, it is in the open ground that the wonderful range of colours which only bulbous flowers can produce is most thoroughly appreciated. They may be grown in formal beds and borders; associated with spring bedding plants to create harmonious blendings or pleasing contrasts; planted in woodland walks, under trees, by the sides of lakes and streams, and on grassy hedge banks, or used with telling effect on rockeries. A notable feature of Messrs. Sutton's publications is the reproduction of attractive illustrations. The cover of the work before us shows two especially charming views, photographed in natural colours, representing a striking bed of Tulips glowing in bright spring sunshine, and a delightful woodland scene enlivened with clumps of Daffodils. Sutton's Hybrid Freesias in exquisite tones of orange, pink and mauve also form the subject of a coloured plate. We notice that Sutton's Purity, a new Freesia of exceptional size and substance, recently received an award of merit from the Royal Horticultural Society. We understand that Messrs. Sutton's regular customers for bulbs will shortly receive a copy of this list, and all those interested in the culture of winter and spring flowers will find it a serviceable and reliable guide.

MESSRS. LITTLE & BALLANTYNE send a catalogue of "Bulbs, Roses, &c.," for 1914. Early orders are solicited by this firm, and purchasers are well advised to place their orders in good time, for when bulbs are planted early in the season roots are quickly formed and one has every chance of good flowers in the following spring. This descriptive and illustrated list gives a good selection of all the popular bulbs, seeds for autumn sowing, and a choice list of Roses. Orders for bulbs from Ireland for 10s. and upwards are delivered free to Irish stations.



OWING to the Perthshire Sweet Pea and Rose Society's Show at Perth having been abandoned, The Boundary Chemical Co., Ltd., Liverpool, have decided that under the circumstances the "Simplicitas" Trophy will be competed for at Perth Show, 1915. We have forwarded to Mr. Tom Jones, Ruabon, who won the Trophy for Wales at Carlisle Show, 1913, a Gold Medal in commemoration of the event.

THE Annual Show of the Newtownards Horticultural and Horse Jumping Society will be abandoned for this year owing to crisis arising from the war.—DAVID ORR, Sec.

THE Kilkenny Horticultural Flower Show, fixed for Sept. 3rd, will not be held.—F. E. BUTLER, Hon. Sec.

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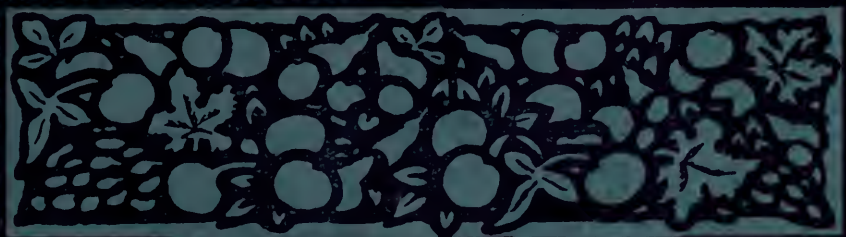
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Irish Gardening

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1914

EDITED BY C. F. BALL.

The Storing and Ripening of Apples.

By JAS. SCRIMGEOUR.

FRUIT growers generally have had much to contend with during the season that is drawing to a close. Early in the year expectations were running high, as the fine season of 1913 ripened up the wood and fruit buds. The result was most encouraging and the trees studded with fruit buds; while the flowering season was unparalleled with promise to the owner and also a source of pleasure to the traveller. Unfortunately the unexpected frost of the 24th and 25th May, together with the extreme cold winds that continued well into June, daunted the growers' expectations. The damage was, however, over-estimated, and ultimately records came forward that prospects were much better than anticipated. In the south apples were set before the frost came, while in the north the trees were coming into flower. Climatic conditions during summer were favourable, and crop, colour, quality, and growth of trees were beyond the expectations of the most pessimistic.

Unfortunately the war broke out as the early fruits were ripening, railways were commandeered, soldiers were on the move, and trade generally in chaos; while every one, realising the magnitude of the undertaking our country had in hands, resolved to live as economically as possible. Therefore the prices realised for early fruit were most disappointing to the growers, as the quality and quantity were 50 per cent. better than previous years, while the price was 40 per cent. lower than usual.

The severe gales that passed over the country generally on the 14th ult.—and I take this from the quantity of bruised apples that arrived in the Dublin markets on the 18th in bags, barrels, baskets, boxes, and all sorts of consignments from all parts of the country—has been most disappointing, as about two-thirds of the whole crop must have been blown down.

Bruised fruit will not keep, while the price is far from remunerative to the grower. Fruit growers should, therefore, pay particular

attention and care to the remainder, as the quantity for storing is reduced considerably, and once the glut of bruised "wind-falls" has been disposed of prices should regulate themselves. It is late keeping fruits that will command a price in the spring months of the year when food stuffs are getting scarce.

To those about to store apples it should be borne in mind that they should be well matured and ready to come off the tree, otherwise they will shrivel. They should be handled equally as gently as eggs, care being taken not to bruise them, as one decaying apple contaminates those around it. Apples will keep well in a cool, moderately dry room or cellar, where an even temperature of 45° can be maintained in all weathers. The garret is a favourite fruit room with most people; but special precautions must be taken against excessive dryness and variation in temperature. A spare bedroom is also a most convenient store-room, provided the windows can be shuttered up to exclude the light, which would tend to cause dryness and shrivelling. A dry frost-proof cellar makes an admirable apple store, and any room approaching these conditions will be most suitable. In the majority of large establishments where fruit is, and has been, grown there is usually a well-fitted fruit room, and the establishment would be considered incomplete without it. The old system of pitting apples is not to be recommended. Storing trays can be had reasonably, and these fit on the top of each other, thus economising space and giving facilities for turning over each apple for examining purposes, and also allowing air through the trays.

Before gathering begins the grower should ascertain if his fruit is ripe. This is a problem that is not easily solved by an amateur grower, as climate, soil, culture, and a variety of conditions underlying the cultivation will naturally affect the ripening process in different localities. There are at least four tests of maturity that

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are practised by most growers. These may be defined as the dropping, handling, seed and flavour tests.

The tree does not concern itself about the edible portion of the apple. It is the seed or pip that it ripens, and as soon as these are matured the tree gives the fruit notice to quit, this being absolute proof of the maturity of its crop. Dropping might be caused by other agencies, such as mildew, wind, drought, over-cropping,

The handling test is well known to peach and pear growers, but applies equally to apples. Gently take the fruit in your hand and raise it up, changing its position slightly, and if it falls into the hand try a few more. If you have similar results the crop may be gathered with confidence; but if it still clings to the branch leave the fruit on the tree for a while, unless winter is approaching too fast.

The flavour test depends on the condition of



Photo by]

NARCISSUS BARRII CONSPICUUS AT STRAFFAN, CO. DUBLIN.

[K., Dublin.

and the effects of grubs and insects. The dropping test applies chiefly to the early varieties, and as soon as sufficient fall to attract attention the remaining fruit should be examined and gathered carefully and not allowed to fall.

The seed test is the most common method. A few fruits are cut in halves and the seeds carefully examined. If they are moderately hard, brown and plump, and the fruit separates freely from the tree, gathering should at once be attended to. If not, give the apples the benefit of the doubt, and leave them on the trees as long as possible, unless the lateness of the season or climatic conditions compel the gathering.

the fruit. Ripening is a chemical process, therefore the fruit is not fit for consumption until this change has taken place. The only method for ascertaining this state of perfection is by tasting as to flavour. An apple is an apple to the vast majority, but to a connoisseur it depends on the flavour and condition of the flesh. The flavour test applies to early, mid-season and late varieties, and determines the time to eat, while the former tests determine the time to gather and store the fruit.

To those who are about to erect a fruit room, they would do well to write to IRISH GARDENING for particulars that they may get the best advice obtainable.

Straffan.

WITH a character peculiarly its own, with gardening going on over long years under the higher—even, we venture to say, the highest—exposition of the gentle art, grasped by the same ministering hand, lies the beautiful home of Bertram H. Barton, Esq., far from the maddening crowd, in quiet Kildare.

If we seem to sin in our high estimate of Straffan—its gardens, its grounds, its altogether—we sin in good company, and take comfort in the thought that our opinion was endorsed and more lovingly expressed by the late Mr. Burbidge:

“Straffan is one of the most hospitable of gardens, all

things beautiful are welcomed there. It may be a rare Fern, or a curious Orchid, or a little gem from the Alps or Pyrenees, a new vegetable, or a finer fruit; the best of care and culture are freely given, and in few gardens, even if more favoured in some ways, are better results obtained.

One could say much more than this, for in all truth the garden at Straffan is an ideal one.”

Of such, then, is gardening at Straffan, and therein its secret of success. It is not easy to pen the notes on Straffan we have been invited to do, for in one's anecdotal memories crop up thick and fast, and going back as they pretty well do to that last great conflict twixt France and Germany, a book would scarcely contain them; salient features with our two last visits must suffice. We could not if we would, nor, indeed, would not if we could, leave Daffodils out of any Straffan notes—Daffodils which from the modest plantings first seen have now run in their millions over the lawns, down to the river's brim, and somehow have migrated to the “brim” beyond.

“They're there at rest,” said our old friend, with a significant prod of his foot, as again we two old boys ambled together over the smooth-shaven lawn. And they are there sure enough. We might say Daffodils are the feature of Straffan were it not that go when you will, even as we have gone under the threat of “nothing to see,” each season seems to provide the feature. Last year we caught them at their best—great colonies of Emperor, running amok—as Emperors are prone to run—Empress, Horsfieldii, Sir Watkin, Barrii, Victoria, Madame Plomp, Glory of Leiden, Nelsoni major, and other commissioned ones of the great army blowing their trumpets to the tune of magni, medio, and parvi, sounding such a dominant note as to carry its

echoes far and wide (*vide press notes*); but, and alas! the Jap. Maples, at one time the glory of this part of the grounds, and colouring superbly at this season, suffered all but to the death from the savagery of last, late May.

All this is near Mr. Bedford's house, where the near lawn-sweep discovers some



Photo by]

K., Dublin.

THE LIFFEY IN STRAFFAN DEMESNE.

grand specimens of golden Cypress in variety, and the soft, rich, dark-hued *Prunus Pissardi*, not hard and dingy, as often seen, acts as a foil. On the wall at hand a tall, wide-spread *Escallonia floribunda* (*montevidensis*) is very beautiful this early autumn day in its fast opening heavy crop of blossoms, another notable wall subject being the veteran *Cesalpinia japonica*, and still *Koeleria bipinnata* claims attention. In a border at hand we note the very distinct and pretty, so-called annual, *Diascia Barberae*, a good tempered little thing producing a profusion of its “chamois-rose” flowers the season through; here it has been in existence for three years, but be it annual or perennial it is decidedly worth having.

A wider herbaceous border facing the west,

but considerably sheltered by big trees at hand, is bright this early autumn day; very conspicuous being clumps of the rich yellow Montbretias Hereward and Cresus with King Edward of that ilk in rich red. A tall, distinguished Monkshood is *Aconitum Wilsoni*, and the position suits *Lobelia Gloire de St. Anne's* to a T. Here, and apropos Lobelias, the two old boys get into discussion, your note-taker telling the tale of *Lobelia cardinalis* (Queen Victoria) at Killarney, 7 feet high, as told him by Mr. A. J. Elgar, and is pertinently pointed to the error of his ways by reference to the true cardinalis, a green-leaved species in the same border, the other being fulgens; and so on to the flower garden.

My—! But such a blaze of colour! Talk about the—the “nakedness of the land” as conveyed in our invitation to “come and see.” It is the enclosed garden facing the older glass range, the western section of which as we entered facing the fast-lowering sun simply beggared description, and might have turned even Turner himself (Turner of the old Temeraire) green with envy. Beds *en masse* of blazing Begonias, of which the double crimson *Surpassé Davis* monopolisingly led; beds of those wonderful *Celosias* in crimson and rich orange, such as one never seems to see quite in the same perfection outside Straffan, and beds of *Heliotropes*, of which we first fell in love with *Madame Filley*, and then jilted her for the darker-hued *Picciola*, yet feeling how happy could one be with either were the other dear charmer away; standard *Heliotropes*, and the vivid green foliage of ivy-leaved *Pelargoniums* in central beds on either side (Turner too), 3 feet or more high, studded with scarlet flowers.

Returning to complete the round of the pleasure grounds we note the attack made by lightning during the last thunderstorm on the tall *Wellingtonia* near the big Tulip tree, the spongy bark being scored all the way down, unlike the previous attack made by it on the Cedar by the avenue which it utterly demolished. On to the north end of the mansion, where some new rockwork is in evidence and a lovely tangle of *Clematis flammula* hangs over a wall at its best. The Italian garden facing the mansion we found entirely changed, the whole area of the walks flagged, beds simplified, merely five in each panel on either side, boundary wall outlines removed, and the colour scheme of planting in red well set off by the big bold sweep of lawn trending to the Liffey. The anglicised design is certainly simpler and the effect to our thinking eminently satisfactory.

Alterations, too, have been made to the

mansion, top and bottom balustradings having been removed; an additional entrance at the south end giving access to new tennis lawns which, although on newly made up ground, we find as level and firm as a billiard table. A couple of old English pattern seats in teak on the terrace bear suggestive poetical legends: the one “Here stop and spend a pleasant hour in harmless mirth and fun. Let friendship reign, be just and kind, and evil speak of none.” The other bearing the possibly better known lines, which we have seen in Lady Ardilaun’s gardens, St. Anne’s, Clontarf, commencing “The kiss of the sun for pardon. . . .” Then to the river.

The Liffey plays a prominent part in picturesque Straffan: deep, placid, and clear, as we see it now, and we get that soul-satisfying view of the fine old bridge away in the distance from the suspended footbridge leading to the wild garden beyond. Anna Liffey, however, is not always thus, and when excited by Jupiter Pluvius is apt to steal a march up the lawns, and on one occasion did its level best to remove the footbridge on which we are standing. But, on to the wild garden—graceful Bamboos, giant Gunneras, colonies of *Saxifraga peltata*, *Silphium perfoliatum*, *Lilium pardalinum*, but the latter has not been happy this year; *Phormiums galore*, including the purple form, and to our delight and worry a huge clump of that noble form, with flower spikes 16 feet high, far nobler than either *tenax* or *Colensoi*, rarely seen, but always one of the worries of our gardening life to have it identified.

Here, too, on the island, is the kept portion with its homely, heather-roofed summer-house, outside of which stands one of the huge ancient Irish millstones, and at hand a rockery bed with lovely hardy Ferns, notably so varieties of hartstongue and the lady-fern daintily crisped and curled; clumps of the Welsh *Polypody* exceedingly happy and *P. vulgare trichomanoides* as plummy as the plumose forms of *Nephrolepis*. Nor may we forget the comforting colonies of *Adiantum pedatum*, and more remarkable as a hardy plant *Adiantum Williamsii*, which here has made itself quite at home. Farther up is a new suspension bridge giving access to the far side; and so we amble on with the kitchen gardens yet to inspect and more “nakedness of the land,” as per invitation.

The kitchen garden, or, rather gardens, the big area being longitudinally bisected by a wall, at once strikes the professional by the splendidly trained wall trees on which our old friend has had his fingers for all but forty years, both horizontal and fan-trained specimens having gone the way they should go, and

notably is this the case with the fine pears bearing great crops throughout. In fact they have to do it—no shirking, and he points with pride to a veteran Marie Louise stretching far its horizontal limbs hanging with fruit from tips to butt, the result of a hint he gave it by lifting and replanting it in its old age. Peaches outside were good, and Golden Eagle is thought highly of. Pyramids and bushes, as well as old standard trees, we found carrying good crops generally, Lady Sudeley apple in superb form and colour, with its character declaimed in the brusque Bedfordian manner, “No good,” over which, after sampling, we agree—as we have so often agreed—to differ.

Alas for the sequel! A few days after our visit Boreas besieged Straffan gardens, as many another garden, and much fruit was laid low, the huge damson in the centre of the garden, black with fruit as we saw it, losing its head completely under the bombardment. Peas and runners too were swept from their moorings, and the former comprised some grand rows of the old Ne Plus Ultra just coming into prolific bearing. We found all green crops grand, and celery clean and luxuriant *sans* doctoring so many have now to employ to fight the leaf-spot fungus. Under a north wall rests in peace the pride of Straffan—viz., that wonderful planting of the Mocassin flower, *Cypripedium spectabile*, but at hand hang wreaths of the Flame Flower, *Tropæolum speciosum*.

It is just a scramble through the glass department after the external ambling and rambling. We note a fine collection of *Caladiums* still transparently fresh, and the *Nepenthes* overhead in wonderful pitcher, including *N. mixta*, *Chelsoni excellens*, and *ventricosa*, with its aldermanic epigastrium. *Allamanda violacea* is charming in its colour tone, and the fernhouse fascinating, especially in its backed-up wall of *Rex Begonias*. Orchids would demand a page to themselves, and many a pet plant which our old friend has reared from infancy up, such as the wonderful *Anthurium Veitchii*, and many another of *auld lang syne* would keep us anecdoting till—as long as you like. But, enough; 'tis but with one side of Straffan we are privileged to deal, and all but too scantily of that. There is the famous short-horn herd known far and wide, and it was, by the way, a special treat that on one visit to Straffan a tour of the young stock department was made and half a dozen, more or less, skittish young gentlemen turned out for our edification, and possibly theirs, for a certain inquisitiveness on their part gave us a hint to “get,” and we “gat,” then, as now, without standing on the order of our going.

K., DUBLIN.

Michaelmas Daisies.

BY J. W. BESANT.

IN the fall of the year the natural order *Compositæ* contributes very largely to the display in the outdoor garden. Very prominent among other genera are the Michaelmas Daisies, known botanically as *Asters*. There is a large number of species, some of decided merit, while others have little to recommend them for decorative gardening. By far the greater number of the showy garden varieties of to-day is the result of careful hybridization and selection. Only a very few species seem to have been used in producing the present popular sorts—notably, *Aster Amellus*, *A. novæ-Angliæ*, *A. novi-Belgii*, *A. cordifolius*, *A. ericoides*, and probably *A. lævis* and a few others. As these are all species as distinct from varieties bearing garden names, it may be well to mention a few species which are well worth growing. Generally speaking, for garden purposes most of the species are superseded by improved varieties, more particularly in the later flowering forms. Although the popular name Michaelmas Daisy is not infrequently used in connection with all *Asters* it properly belongs to the later flowering kinds.

Two very early flowering *Asters* are *A. diplostaphioides* and *A. subcœruleus*, both of which flower in June, and are very acceptable even then when flowers are becoming plentiful. They are comparatively dwarf in habit, producing flower stems some 18 inches high, rising from the basal leaves and producing solitary flower heads 2 inches or more across, the ray florets being a fine shade of purplish-blue. Of the two, *A. subcœruleus* is perhaps the larger flowered, especially in the variety *major*, which is a really fine plant.

In August *A. acris* begins to unfold its flowers, and continues into September, ushering in as it were the great mass of varieties which will carry us into October and even November if the weather holds good, and hard frosts do not occur. This is a European species of medium height, not exceeding 3 feet or so, with small leaves and dense clusters of pale mauve-blue flower heads. It is much esteemed for cutting.

In September *A. Amellus* becomes prominent, some of its newer varieties being of quite exceptional beauty and very floriferous. The old type plant is by no means to be despised, since it produces abundance of flowers year after year, even though perhaps receiving scant attention, one or two varieties nearly as old in gardens as the type are still worth attention. *A. Amellus bessarabicus* is an excellent border plant about 3 feet high, producing handsome flower heads of a deep purple-blue shade. *A. Amellus majus*

is equally fine and is quite equal to some of the latest novelties. Of new forms of *A. Amellus* introduced within recent years the following is a fair selection:—*Beauté Parfait*, with handsome, deep blue flower heads; *Fleuve Bleu*, lavender blue; *Madame E. Gaugin*, small pink heads; *Preziosa*, deep violet-blue; *Perry's Favourite*, rose-coloured, and *rosens majus*, a fine large flowered pink form.

A. laevis, a North American species, makes a handsome border plant, flowering rather later than the *Amellus* varieties, and reaching a height of about 4 feet. The leaves are smooth and rather glossy, and the conspicuous flower heads a good shade of blue.

A. diffusus horizontalis is a very pretty dwarf sort, very useful for cutting. As the varietal name implies, the branches spread out horizontally and are densely furnished with small leaves and numerous flower heads, the prevailing colour being white.

A. Thomsoni is a delightful July flowering species extending into August. It comes from the Himalaya, and is represented by two forms apparently. Both have rather hoary leaves, but one grows 2 feet or more high, bearing rather loose flower heads of a pale lilac; the other and better form is dwarfier with broader ray florets of a deeper and more pleasing shade. Both, however, are desirable plants, and should have a sunny position in good, but well-drained, soil, and should not be disturbed.

A. versicolor is a useful North American species which derives its name from the fact that the flower heads vary from white to pink as they expand. It is, nevertheless, a good plant in the border, and makes a nice show in September and October.

A. vimineus is useful for the front of the border, and especially for cutting, growing only about 2 feet high, of dense twiggy habit, bearing abundantly small white flower heads.

Most of the other popular Michaelmas Daisies are better known by their garden varieties, which for ornamental gardening are superior to the type plants. Particular reference to the species is therefore omitted except as the type of each section.

A. cordifolius varieties grow from 3½ feet to 4 feet high, and are characterised by their graceful habit of growth, cordate finely-toothed leaves and pretty flower sprays. Some of the best are:—*Albulus* and *Diana*, white; *elegans*, soft lilac, and *Edwin Becket*, lavender. *A. ericoides*, with small heath-like leaves, has given us some very pretty garden varieties highly esteemed for cutting. The flower heads are small, but produced in lavish abundance in elegant sprays. A few of the best are *Clio*, with small

blush flowers; *Delight*, white; *Freedom*, white; *Thora*, white, and *Sensation*, pinkish-white. The height varies from 2 feet to 4 feet, the habit and appearance of the different forms being more apparent when seen growing in the garden.

One of the most delightful of all Michaelmas Daisies is the *Hon. Edith Gibbs*, probably a *cordifolius* form. The long graceful growths assume a pendulous form at a height of 4 feet or so, and literally sweep down to the ground in a veritable cascade of soft lilac flowers. Most of the taller growing, later flowering varieties are the offspring of *A. novæ-Angliæ* and *A. novi-Belgii*, the former with rather hairy leaves, and the latter with smooth or glabrous foliage. Most of the popular forms seem to favour *A. novi-Belgii* in having smooth leaves, but there are several good kinds which it is usual to class with the former species—notably, *Lil Fardell*, with large rose-pink flowers; *Mrs. J. F. Rayner*, rosy-red; *pulehellus*, violet; *ruber*, bright red, with *Ryecroft Purple* and *Ryecroft Pink*. Of the *A. novi-Belgii* section there is a wide selection flowering over an extended period in late autumn. Possibly most of the recent new varieties belong here, but it is not always possible to say definitely, nor is it a matter of any moment provided they are good garden plants. There are far too many varieties being sent out annually which possess but little merit; some few, however, are decided acquisitions.

A few of the older sorts which are still in the front rank are:—*Robert Parker*, large lavender-blue heads; *Top Sawyer*, lilac; *St. Patrick*, silvery-grey; *Perry's Pink*, *F. W. Burbidge*, rosy-heliotrope. Dwarfier forms are:—*Pleiad*, rose-coloured; *St. Egwin*, rosy-pink; *D. B. Crane*, lilac-blue; and *Alice*, soft pink. Of the newer forms—*Climax*, a tall grower, with large clear blue heads, is very fine, and the double-flowered *Beauty of Colwall*, with lilac-blue flowers, is one of the great acquisitions. *Nancy Ballard* is a delightful double lilac pink, which will be a beauty for cutting; likewise *Cloudy Blue*, another double of much promise. *Grace May Lewis* is practically double, though not quite so full as *Beauty of Colwall*, and is of a good deep lilac shade; *Lady Lloyd* is a good clear single rose, and *Rosy Morn* is a delightful colour, and apparently dwarf in habit, flowering here about 3 feet high. *Jupiter*, a large flowered, semi-double, soft lilac, is good, likewise *Neptune* in the same way, but paler in colour.

Growers who specialise in Michaelmas Daisies will know of scores of other varieties, but few gardens can accommodate even half of them; it is well then to see as many as possible and grow just those that appeal to the individual concerned. Good cultivation makes all the

difference in the world to Asters. Even though they will live and increase almost anywhere, a good variety will appear wretched in a hungry soil, but if grown in rich material will be a

the Amellus section. Every second or third year is sufficient in this case; the plants form fewer basal growths and less fibry roots than most of the others, consequently they do not



Photo]

[Messrs. Watson & Sons.

MICHAELMAS DAISY, COOMBE FISHACRE.

delight to behold. Rich soil therefore and annual division is necessary, and the divisions should be quite small even to single crowns in the strongest sorts. Division should be done immediately the shoots begin to die down in autumn or in spring just before growth commences. There is one section, however, which does not require to be divided so often, that is

lend themselves so well to minute dividing, although at stated intervals it is quite necessary. In cases where for some reason division annually is not practicable, a rigorous thinning out of the young shoots should take place in spring, and the thinnings if carefully removed make excellent cuttings. It should be noted too that A. Thomsoni is impatient of frequent disturbance.

Alpines in a Dalkey Garden.

BY J. HARPER SCAIFE.

EVERY true gardener learns something from his own experiences, especially from his failures, but the collation of the experiences of others under similar and dissimilar conditions must necessarily teach us more and help us to solve some of the many problems that confront all lovers of Alpine plants.

But the experiences of others can only be assigned their proper values by knowing something of the circumstances, not merely about the soil, but of the air, the rainfall, and the range of temperature. The writer's garden is on granite slopes rapidly from west to east, and, although within a hundred yards of the sea, is well sheltered from the strong winds, but this very shelter deprives it of some sun which it would get in a higher and more exposed position.

The influence of the sea (apart from temperature) on Alpines is a most interesting question, and offers scope for patient observation and investigation. With the greatest diffidence I suggest that in some cases it adds something to the colouring of the foliage, and that so far as the habit of a plant is concerned, it may tend to keep it more "at home." Its influence on the range of temperature is a factor of considerable importance. Dalkey is never so hot or so cold as places a few miles inland; its rainfall is not great, and the natural drainage is sharp.

So much then for environment and local climatic factors.

September is a month when there is little in the way of bloom in the rock garden, but it affords a convenient opportunity for retrospection and stocktaking.

We are not however without some colour.

First and foremost is *Lithospermum prostratum*. Two small nursery plants were put in—one in April, 1910, the other in February, 1911; they are now from 2 to 3 feet across, and are almost constantly in bloom.

One plant of *Androsace lanuginosa* var. *Leichtlini* is covered with bloom. It hangs down between two pieces of rock bordering a path, and gets no protection in winter. On flatter positions, plants, both of the type and the variety, have survived a winter's rain without a glass, but when the spring comes they are not so fresh and vigorous as when protected. *Androsace sarmentosa* has also come through this last winter without protection, and flowered well. It was an experiment, but there is no doubt but that all these woolly-leaved plants

are the better for a piece of glass to throw off the winter rains.

Erodium Amanum and *E. Reichardii* have still some blooms, and *Geranium cinereum* was flowering away merrily at the beginning of the month.

Convolvulus mauritanicus (pale blue) and *Antirrhinum Asarinum* (large creamy flowers) are in bloom; the latter is a most useful and beautiful plant with a very long blooming period. It will live through the winter, but generally dies off in the early spring; it sets seed abundantly which germinates easily.

Amongst the *Campanulas*, *C. acutangula*, a seedling planted in the moraine in the spring, has made great growth, and is still in flower, so are two plants of *C. garganica*—one blue and the other almost white. *C. raddeana* flourishes and blooms abundantly, so do *pulla* and *puloides* in narrow pockets and with little attention; a rather good form of *muralis* makes large masses, and is in bloom for the greater part of the year. *C. petraea*, I have in a very narrow fissure in the "live" rock; it grows, but so far has not flowered.

Readers of Mr. Farrar's "In a Yorkshire Garden" will remember his glowing description of a new *Aizoon Saxifrage* which he found and christened "Rex." In September, 1911, I planted a small piece, one rosette about the size of a shilling with a baby offset attached. It grew well and multiplied, so that last year I was able to take three offsets and yet leave a clump of about half a dozen rosettes. It did not, however, show any sign of blooming until the spring of this year. I have not heard of anyone blooming it, and indeed outside Mr. Farrar's book I have seen no reference to it. I therefore looked forward to the blossoming with considerable interest and expectation. Unfortunately the only photograph I got of it is not good enough for reproduction.

The flowering rosettes are $1\frac{1}{2}$ inches in diameter. In shape the flower is much like *S. burseriana*, the petals overlap and are of good substance. The purity of the white leaves nothing to be desired, but there are tiny pink dots in the centre.

The clump threw up three stems, bright red in colour, about 6 inches long, and each carried from eight to ten blooms. So far as the individual flowers are concerned I consider they are larger and possess more substance and beauty than any others of the *Aizoon* group, and I look forward with anticipation to what a well established clump will do in one or two years' time.

Its cultivation seems to be easy enough. The

flowering clump gets a fair amount of sun, and the soil has lime rubble and granite chips through it. Two offsets planted in granite moraine, with some lime rubble, are growing and increasing with great vigour, but time alone will tell whether the moraine will make much difference.

Two or three *Aizoon Saxifrages* behave badly with me. Two plants of *rosea* adjoining each other behave diversely; they came from different sources. One goes on making a big mass, liberal with flowers, and maintains a robust health. The other also blooms and increases, but every year considerable portions turn rusty and decay, and although I lift, take out the good pieces and replant in renewed soil, the same thing occurs again. *S. Kolenatiana* is another that gives me trouble. Three years ago I had a plant that flowered well, the colour a very lovely pink, and then quietly died away. A second plant with typical foliage gave white flowers and afterwards rusted away.

Last autumn three new plants were put into the moraine—one expired; a second, after losing most of its rosettes, seems to have just survived, and the third is in a moderate state of health. The rosettes make a very tight, humped-up clump, and it is possible the plant needs frequent division and re-planting.

The easier members of the *Kabschia* family—*Sax. apiculata* and its white variety, *Elizabethæ*, *L. G. Godseff*, and *Salomonii* make large masses, but the last-named is very shy in the matter of flowers. *Scardica (vera)* flourished for twelve months and then suddenly died away without flowering. I lost several plants of *Burseriana Gloria*, and a variety I had under the name of "major"; they flowered once and then the tufts grew paler in colour and dwindled away. I have now got promising pieces of both in soil that is about half stone and chips, in a more shady position, and they look healthy and vigorous. *Petrashii* in the moraine was splendid from mid-March to May, but is now looking rusty. In the same place two plants of *rocheliana* died off after blooming.

Faldonside, *Paulinæ*, and *Ferdmandi Coburgii*, also in the moraine (the sunniest place in the garden), look as if they are going to succeed. I am satisfied that many of the *Kabschias*, whilst small, are impatient of the winter rains, and I should not think of putting out a small nursery plant of any of the choice kinds in the autumn unless I could protect the foliage from rain until March.

Some other treasures that do not appear to be very common in rock gardens and which do well here are:—*Polemonium mellitum*, with lovely long tubular flowers a glistening milky

white, in bloom from May to September. *Shortia galacifolia*, in peat and granite, in a position where it gets a little sun, but is very sheltered, has done well; it bloomed freely early in the spring, and is now a fine vigorous and increasing patch. *Oxalis enneaphylla*, on a cool ledge, blooms over a long period, and is increasing. *Asperula athoa (suberosa)*, a small plant, put out on the moraine between two pieces of rock, has grown most vigorously, and for quite three months was covered with bloom. Its long but very narrow, pale pink trumpets are charming. The beautiful downy foliage looks as if it would like a piece of glass to throw off the winter rains, though *Asperula nitida* takes care of itself here.

Will there be a Food Shortage in Ireland? *

THERE is every reason why the average man should be uneasy about food supplies since the war began. He is, no doubt, less uneasy now than when the first panic with its prohibitive and fluctuating prices for food made him believe that the shortage was upon us even from the very beginning of the war. But his uneasiness can only be set at rest by his knowing what the facts are; how much food we have, and how much we are likely to have if the war lasts, and what steps should be taken to produce more food. He also wants to know whether prices are likely to fluctuate again, and what he can do to prevent an undue rise. All this information has been prepared for him in an extremely well-done little book by Messrs. L. Smith-Gordon and Cruise O'Brien, the Librarian and Assistant Librarian respectively of the Co-operative Reference Library, Dublin. The book is divided into two parts; the first dealing with the facts of our food supply, and the second dealing with the causes of an undue fluctuation in prices and the means which can be adopted to prevent any future panic. There is no important fact concerning either of these matters which the writers have neglected to deal with. The book is written in a lucid and practical manner, and its figures are presented in an easily understood form. The writers having been at pains to render all foreign measures into English equivalents when dealing with our imported foodstuffs. The searching examination of the remedies for undue fluctuation of prices, particularly in very poor districts, is admirable, and the scheme put forward by the writers appears to us in the interest not only of the consumer, but of the trader and the producer. The Co-operative Reference Library was established by Sir Horace Plunkett to act as an Intelligence Department on agricultural economics. It has certainly begun its work well. The appendix contains a collection of the leaflets on food supplies issued by various departments since the outbreak of war. Valuable information on poultry raising and catch-cropping is given in these.

* "Ireland's Food in War Time." By L. Smith-Gordon and Cruise O'Brien. Issued by the Co-operative Reference Library, The Plunkett House, Dublin. 1914. Price, 3d. net.

Pear Culture.

By D McINTOSH, Danum Gardens, Rathgar.

Good drainage and a thorough preparation of the soil are two essential factors to be considered to obtain the best results in the cultivation of the pear. The former should be so arranged as to concentrate the water to one main outlet which can be periodically inspected to ensure it is clear and in working order. The latter, if unsuitable as a rooting medium, must be transformed as nearly as possible to what it should be. A deep, rich loam is undoubtedly the best. The ground should be trenched at least to the depth of eighteen inches, and should the soil be poor apply a heavy layer of manure immediately below the top-spit. When trenching do not bury the top-spit in the bottom of the trench, but retain each in its proper place as the work proceeds. A good coating of fresh lime should be applied immediately after trenching, as it entirely destroys slugs and innumerable larvæ of insect pests. It also supplies in itself a necessary ingredient to the welfare of the pear. Allow the soil to remain in its trenched condition several months previous to planting. The planting of young trees should be carried out in favourable weather, any time from November to February.

The pruning of the more advanced trees should be commenced in November, starting away with the earliest varieties first. In pruning, cut clean away all weak and unripened growths, and where the fruit spurs are in over-abundance thin out the weakest of these also. Cut the laterals back to two or three eyes and reduce the leading shoot to two-thirds of its length.

The next important operation will be the attention to surface soil and roots. Two inches of the surface soil, as far as several feet from the base of the tree, should be pricked up with a fork and removed to the rubbish heap. Previous to this a preparation of soil should have been made up, consisting of three parts good fibrous loam, one part lime rubble, one part wood ashes and a good sprinkling of soot and bone meal. Having turned this over two or three times, it should be spread over the roots to the depth of three inches, and firmly trodden when in a favourably dry condition. This is all the trees will require until the fruit blossom begins to expand. At this period advantage should be taken of fine weather to pollinate the flowers artificially. This is easily accomplished by means of a rabbit's tail tied on to the end of a bamboo cane, and applied to the centre of the flowers when fully expanded during the middle part of the day. This practice invariably ensures a good set, and is well worth the time spent upon it. Just as the fruits have begun to swell, the first thinning of surplus fruits must be commenced, leaving three of the best and largest on each spur, but, as the season advances gradually reduce the amount to one fruit on a spur. The crop must be estimated according to the vigour and condition of the individual tree. The caterpillar is a troublesome pest about this time, and every means should be taken to get rid of it. The plan I adopt is to look over the leaves with the hand every other day and squeeze the culprit between the finger and thumb. If this operation be persevered in from the first appearance of the pest, little damage will be done

to the fruit and leaves. Sometimes, in the early part of the year, there is a spell of drought which may ruin the crop for the season. A check like the above causes the fruits to drop and often invites red spider, therefore it is imperative to see that wall trees in particular are not allowed to suffer for want of water. It is very important to keep the leaves clean and healthy throughout the growing period. To gain this end I know nothing to beat the use of the hose, applying the water with some force upon the leaves in the evening about twice a week during the summer months. An operation I would recommend is the pinching out of the points of strong, robust growths as soon as they have made six or eight leaves. This equalizes the run of sap throughout the tree, strengthens the weaker shoots and assists largely the development of the fruits.

Where plenty of manure is procurable it is a good plan to mulch the roots of the tree in order to conserve moisture and to keep the roots near the surface. This mulch should be applied in June and spread out four feet from the base of the tree to the depth of three inches. Previous to mulching, carefully prick up the surface soil with a fork before laying it on. Should the weather continue dry, give this mulching a good watering in with the hose and keep the soil around it well hoed at regular intervals. In July, when the fruits are developing rapidly, and particularly in the case of heavy crops, a start should be made to feed the trees with liquid manure and soot water alternately once a week. The greatest care should be exercised in applying liquid manure. First, be sure that the soil around the roots is perfectly moist; and secondly, make equally sure as to the strength of the manure to be applied. Generally speaking, about one-third of liquid to two-thirds of clear water is the rate at which to apply.

From time to time, especially towards the ripening period, any leaves that are shading the fruits from the light should either be tied back or taken off altogether with the finger and thumb. The more sun, light and air the fruits can receive the more improved will they be in flavour. Some varieties of pears obtain a fine colour if fully exposed to the sun, and if form and size be with it, these are the fruits that will excel on an exhibition table. Pears must be most carefully handled when ripe, as the least bruise will soon commence decay. Early varieties require to be used soon after they are taken from the tree.

In conclusion, I append a list of the best varieties in their order of ripening:—Clapp's Favourite, Williams' Bon Chretien, Beurré d'Amanalis, Madame Treyve, Louise Bonne de Jersey, Marguerite Marillat, Triomphe de Vienne, Beurré Superfin, Conference, Durondeau, St. Luke, Beurré Hardy, Pitmaston Duchess, Marie Louise, Doyenné du Comice, Conseiller de la Cœur, Beurré Diel, Glou Morceau, Easter Beurré, and Beurré Rance. The two best cooking pears are Catillac and Uvedale's St. Germain.



PHLOX.

IN our last issue by mistake we credited Mrs. Keith with winning the silver medal for Phlox, whereas it should have been Mrs. Knox, Invernisk, Killiney, who won the medal and cultural certificate at the Stillorgan and Foxrock Society's Show.

Herbaceous Calceolarias.

By W. BARRETT.

THE following notes, by the editor's request, describe how Calceolarias are grown at Ballyheigue Castle. The photograph shows a group of Calceolarias occupying the centre stage of a house, 25' x 18', numbering in all 120 plants, flowering in 8" and 10" pots; most of the plants are 2' 6", though some are 3' 6"; grown from seed supplied by Dicksons, Chester. Size of blooms and colouring of same leave nothing to be desired.

Their culture in the gardens here is as follows:—The seed is sown very thinly in pans, in the month of June, in a mixture of two parts fibrous loam, one leaf soil and one sand; very lightly cover the seed, and germinate in a cool house, away from any rays of sunshine; cover with some sheets of glass (which must be turned every day). The seeds then ought to be through in from eight to ten days. The covering of glass now must be gradually removed until dispensed with altogether. As the seedlings get stronger keep as near the roof glass as possible, always shading from strong sunshine, as this would be detrimental. As soon as the seedlings show the second leaf, prick out into boxes filled with the same compost as before advised, 1½ inches apart each way (let the smaller seedlings remain in the pans for a few days, as they are generally the most choice colours and most compact plants). When the seedlings have been pricked off give a light watering through a very fine rose, and cover again with glass for a few days; this makes the plants strike root much more quickly into the fresh soil. When the plants are growing freely and the leaves are touching each other they need to be put into pots. Plants vary in size, so the grower must use his own discretion as to size of pot used. We find 3" and 4" the proper sizes at this stage. As potting proceeds (same soil as used previously) be very careful to take each plant out of the box with all possible roots intact, without taking any of the roots of its neighbours. We never use a trowel for this purpose, it is much better to use one's fingers, as then you do not cut the roots of the plants, which, if broken, do not start away into growth near so quickly. Never use anything for potting Calceolarias only

the fingers until the final potting, when the potting stick will be found useful just to firm the soil, but not made hard by any means. When the potting is finished put the plants into a cold frame and keep closed, as before, for a few days, remembering all the time to guard against the strong rays of the sun. When the plants are growing freely and the pots being nicely filled with roots at least by October they ought to be in 5" and 6" pots, just a good size to winter in; use the same soil as before-mentioned, only somewhat coarser. If one is to be successful in the growing of Calceolarias it is very essential that they must have cool house or frame treatment all along the line, and also rather moist surroundings by way of damping the bed of ashes or other material on which the pots stand. Very slight spraying with a syringe through the plants after a hot day is very beneficial. At all stages from the earliest stages shade from strong sunshine.

Occasional fumigating is very good, as Herbaceous Calceolarias are very apt to attacks of greenfly, which, if allowed to get a footing, spells failure. "Prevention is better than cure." We always fumigate three or four times during the season, even without any sign of fly. Careful watering during the winter, when plants are making very little growth, is very necessary, and as the month of January arrives it is time to begin potting into



HERBACEOUS CALCEOLARIAS
At Ballyheigue Castle, Co. Kerry.

flowering pots. Pots 8" and 10" are the best sizes. Good crocking and clean pots are very essential. Beech or oak leaves make fine covering for crocks, if just broken with the hand, as they are ever so much more clean than rough loam or the siftings of leaf soil. The compost I use for final potting is as follows:—Four barrow loads of loam, two beech or oak leaf mould, one old spent manure, one coarse sand and a six-inch pot of old soot to the above quantity of mixture; put the leaf mould through an inch sieve and break the loam with the hands, as this process (rather than sifting loam) preserves the fibre. Potting finished it is much better to move the plants on to the stage of a cool greenhouse as near the roof glass as possible, the latter keeps the plants nice and stocky, also it is much easier to regulate the watering (especially at this time, on account of the large amount of soil surrounding the newly potted plants, which need careful looking to) than it is in a frame. In case of heavy frost it is necessary to put a chink of heat in the pipes,

especially if one's plants are near the roof glass : but, otherwise, " unless in very heavy frost," a few mats are all that is needed. When the plants begin to grow very freely, which is about the month of March, and when the pots being fairly filled with roots, not before, it is time to give a little assistance by way of some weak diluted soot water, horse and cow manure, and sheep manure. Stop feeding immediately the plants show bloom. Be careful to shade plants during the hottest part of the day when in bloom, as this keeps the blooms in better conditions, and also prolongs the flowering season. I often wonder why one sees so little of these showy Herbaceous Calceolarias. A house with a side stage all round of Calceolarias and centre stage of Shizanthus, such as the variety Hawlmark "Excelsior," is a sight not easily forgotten.

Hints to Novices.

BY MAY CROSBIE.

DURING this month and next all woody cuttings can be put in. Under this head come trees, all hardy shrubs (practically all can be propagated by cuttings), gooseberries, currants, and roses.

The method is much the same for all. Before making any cuttings prepare the ground that they are to go in. If you can choose the position—a sheltered eastern or north-western aspect is best, but any position that has not a full south or south-western exposure will do. Dig the ground deeply, breaking it up very thoroughly, adding wood-ashes, road scrapings or sand, to keep it as fine as possible. Leave it a week or longer to settle before putting in the cuttings.

A very great many Roses do just as well on their own roots as if they were budded, and it is always well worth trying them; in fact even a great many budded Roses in some soils do not seem to thrive until they have thrown out roots of their own from above the junction with the stock. All "garden" Roses and almost all the Climbers are certain to be successful. The Wichurianas—that is the popular class to which Dorothy Perkins, Hiawatha, &c., belong—are very quick rooters and quick to make large plants.

When making the cuttings, choose well ripened young shoots about 6 or 8 inches long; if possible get them with a "heel"—that is, to tear them off just where they join an older branch, and you will then get a little of the older wood attached to the piece you have taken off. Pare the rough-torn surface quite smooth with a sharp knife. If you cannot get a good piece with a heel, cut it straight across just below a leaf. Open a narrow trench 6 inches deep in the prepared ground and place the cuttings about 4 or 6 inches apart against the side of trench. Fill in soil and tread firmly, being careful that the cuttings are kept in an upright position.

The preparation and planting of gooseberry cuttings is the same, except that the cuttings should be at least one foot long, and all the buds rubbed off except five at the top of cutting, and they should be planted 6 or 8 inches deep in the ground. Rubbing off the buds carefully, especially all those at the base of a cutting with a "heel," will ensure later on a plant with a nice clean stem and very little chance of suckers from the base which are so troublesome to keep out away. Red and white currants are done the

same way, but black currants should not have any buds rubbed off, as a constant supply of young growth from the base is needed if you want to get the best out of the bushes, as the best black currants are always borne on the young wood. All these cuttings will want moving into a nursery bed next autumn, where they will remain for another year before planting in their permanent position.

For shrubs, both deciduous and evergreen, the cuttings need only be a few inches long, of course with a heel if possible, and are better dibbled into the ground; if there is sand available put some in the bottom of each hole, and be sure that the base of the cutting rests firmly on it. Remember with all classes of cuttings firm planting is one of the most essential points towards success. In the thaw after a spell of frost it is well to look over the cuttings and to make firm again in the ground any that have been loosened by the frost.

Of soft cuttings, Viola, Pentstemon and Calceolaria cuttings can be made, but they should be put in under a frame or else in boxes in a greenhouse. In the case of Violas, the shoots from the base that have not yet flowered are the right ones to take. Choose the sturdiest pieces and cut them straight off just below a leaf, leaving cutting about 3 inches long. There are always plenty of nice, short, firm shoots on Pentstemons now that can be broken off with a nice heel. The soil for these ought to be light and fine, old potting soil is excellent. If boxes are used for them, they must have holes in the bottom for drainage and a good layer of moss or fibre put in bottom of box before soil is put in, so that the drainage holes do not get choked.

Aconitum Wilsoni.

THE majority of the tall-growing plants in the border flowering in late autumn produce flowers of a yellow shade which renders the pale purple-blue flowers of this Monkshood particularly welcome. In deep rich soil it reaches a height of well nigh 6 feet, and the erect stems being exceptionally stiff the plant requires little staking. Early in September it commences to open its large-hooded flowers, and after the terminal raceme has finished, secondary flowering branches are produced from lower down the stems, and these prolong the flowering season for many weeks. It is an exceptionally reliable plant, flowering splendidly every year no matter whether the season has been favourable to plant growth or otherwise. Like so many more of the plants which have been introduced to our gardens in recent years, this Monkshood hails from China, and is rapidly becoming well and favourably known.

Caryopteris mastacanthus.

THE number of shrubs which flower in late autumn is by no means large, and amongst these the above occupies a prominent place. Indigenous to China and Japan, it is unfortunately not quite hardy except in the milder districts, and, when planted, care should be taken to give it a good warm position in well drained soil. Individually the flowers are small, but so freely are they carried that the shrub, when in flower, is literally a mass of blue. We sometimes see this plant described as the Blue Spiræa, but it has no affinity with the Spiræa, being really a member of the Verbena family.

Dipelta floribunda.

THE genus *Dipelta* was founded by Maximowicz in 1877, but it remained unknown to cultivation until Mr. E. H. Wilson collected seeds in Western China for Messrs. Veitch. The seeds were sown in 1905, and the plants flowered a few years afterwards.

This *Dipelta* is a deciduous shrub, growing from 3 to 16 feet high, in general appearance resembling a *Diervilla* or *Weigelia*, but it may easily be distinguished by a pair of round wing-like bracts, about half an inch across, attached to the base of the ovary of the flower.

The flowers are produced in clusters of three to six from the leaf axils; they are about 1½ inches long, tubular and two-lipped, pale rose in colour, and veined with yellow in the throat.

The leaves are ovate, from 2 to 4 inches long, narrowing to a long point.

During the severe May frost, when many other shrubs and Chinese plants were blackened and injured, the *Dipelta* was untouched, and up to the present the winters' frosts have had no effect.

Unfortunately its flowers in May at the same time as the showy *Diervillas*, nevertheless it is a free-growing and profusely flowered beautiful shrub, and will be a welcome addition to the garden.

Dipelta ventricosa differs from the former in having larger winged bracts, larger flowers of a deeper colour, and the tube does not taper or narrow to the base as in *D. floribunda*, but is more inflated.

These *Dipeltas*, like many other shrubs, will root freely from short, half-ripened growths taken in August, September or October, and inserted in sandy soil in a close frame or under a shaded bell-glass.

Three New Kniphofias.

TOWARDS the end of September the *Kniphofias* (Red Hot Pokers) are always welcome for their warm colours. Among the newer ones tried at Glasnevin are three which seem desirable and good plants.

Kniphofia Marie Dirkin is a dainty little variety about 2 feet high, freely bearing spikes of

flowers, in colour a light tomato-red on a soft yellow ground, and is very pleasing and attractive.

K. Egypt is a moderate grower, sending up flower stems from 2 to 3 feet high, the long tubular flowers open a clear lemon-yellow and deepen in colour before they fade; it is a charming autumn plant.

K. aloides erecta superba is a fairly strong grower, from 3 to 4 feet high; it differs from other varieties in the flowers being erect and not drooping on the stems. In colour the flowers are warm orange-red, the lower ones last until the top ones are open. This is a distinct and useful plant for the border.

Lysimachia Henryi.

A USEFUL and pretty late flowering plant for the rock garden, thriving in a somewhat peaty soil, is the above-named. It is quite a dwarf plant, reaching a height of little more than 4 inches and

forming in a congenial situation tufts almost a foot across. The stout reddish stems take root at the lower nodes, and by this means it spreads rapidly, whilst the habit also renders propagation an easy matter. Each stem is surmounted by a dense head of flowers borne in the centre of a tuft of smooth ovate leaves, each some 2 inches long by half an inch across. The golden yellow campanulate flowers are



DIPELTA FLORIBUNDA. A NEW CHINESE SHRUB.

fully an inch in diameter, and as all the buds do not open at once the flowering season extends over many weeks. In early August the first flowers open, and it is not until late in October that the last has faded, while, as the leaves are retained through the winter, the plant is never really bare. *Lysimachia Henryi* is a native of China, and the first plants to flower in this country were raised from seeds sent home by Mr. E. H. Wilson, who collected it in its native haunts. S. ROSE.



LAVENDER AND ROSEMARY.

THIS is a good time to take cuttings of these sweet-scented shrubs, also *Southernwood* and *Santolina*. Select short, stumpy cuttings which are well ripened and pull them off with heels. Insert the cuttings in a cold frame in sandy soil or in a sheltered border, and give a good watering to settle the soil around the cuttings.

The Month's Work.

The Flower Garden.

By WM. G. WADGE, Gardener to Lady O'Neill, Shane's Castle, Antrim.

ALTHOUGH the summer bedding may still be gay, it is now time to commence clearing the beds, if these are to be refurnished with spring-flowering plants. Many plants are of no further use, and can be consigned to the rubbish heap. Trained plants, that will be needed again, should have the roots cut off from the pots, the pots washed, and the growth cut back to the old wood. A cool house will then be the place for them. Tuberous Begonias should be spread thinly under lights; when dry they can be stored away in a shed that is frost and drip proof. Some good plants of Geraniums, if potted up, will develop into fine specimens for furnishing vases next year; a number should also be saved for propagating in spring if the stock of cuttings is not large enough. Dahlias will continue flowering so long as frost keeps away, but a slight snap will blacken them: they should then be cut down, and the tubers stored away under potting benches or in similar places. Cannas require the same winter treatment as Dahlias. Lift Gladioli with the foliage intact. Spread them on the floor of a fruit house until the stems turn yellow, when they should be removed. The corms will keep well in a fruit room. If the boxes of Geranium cuttings are still out of doors, they must now be moved. Brick pits, with a hot-water pipe running round them, suit these admirably; but, oftener than not, they have to be kept in fruit houses. Remove any rubbish from amongst the cuttings, and stir the surface soil with a pointed stick. Give air liberally, and afford a little heat in the pipes during damp weather.

Lawns and walks will need frequent sweeping now. All pieces of sticks, also the woody stems of any plants cut down, should be placed together and burnt when opportunity occurs. The fallen leaves will, of course, be stored in heaps for making hot beds later, or for use as leaf-mould when decayed. Get in the stock of mats deemed necessary. The ends may be neatly tied during bad weather. Bracken should be cut and dried, and stored in a shed for use as protection against frost.

Choose a dry day to secure any seeds wanted of Asters, Stocks, Pentstemons. There may be a scarcity of some kinds of flower seeds next spring; it will be good policy therefore for those who do not usually save any seeds to make an exception this year. Cut the seed pods or heads off, and lay them thinly on papers on warm dry shelves.

Re-label the plants in the borders if the labels are weatherworn, especially if it is intended to dig and replant this season.

SWEET PEAS.—To get the finest flowers of these sow the seeds now in pots. Four-inch or six-inch pots are a useful size, and four to six seeds may be sown in each. Place the pots in a cold frame, on a hard bottom of cinders. Keep the frame freely ventilated at all times. The growth

cannot be too slow during the winter. Take the precaution of excluding mice, as these will spoil a valuable lot of seeds or seedlings in a night or two.

The Fruit Garden.

By PETER BROCK, Horticultural Instructor for Co. Fermanagh.

THE gale on the 14th inst. which tossed stooks and hand-stacks of grain was also unsparing in its ravages on the apple crop, early sorts especially being severely thinned. Late kinds, however, such as Bramley and Newtown Wonder, although losing a few, have not fared so badly as might have been expected, and, where they had a short fall on to soft ground or coming in contact with grass, may be kept till the glut of softer-skinned apples have been disposed of.

STORING FRUIT.—The gathering of apples and pears as they become fit must get first attention. Handle carefully so as to avoid bruising, and, as far as possible, store when quite dry. The best time to store fruit is when it has reached the stage of maturity that it parts freely from the tree by lifting it gently upwards, or one or two fruits may be cut through, and if the pips are turning to a brown colour, the crop may be considered fit to store. Choice dessert apples and pears should be laid out in single layers on clean shelves; hard-skinned and long-keeping apples may be stored several tiers in depth. Commercial sorts like Bramley, Lane's Prince Albert and Newtown Wonder should be carefully graded into selects, firsts, seconds, and culls as the gathering proceeds, and then placed in clean egg cases. The advantages of grading at the time of gathering are that the selects are generally first in demand, and the smaller grades are longer keepers and can be kept till later in the season. The cases should be filled nearly water-measure full, then lay a sheet of paper on top of the fruit; the grade of the contents should be marked on the outside face of each case. The different grades may then be tiered up separately, placing blocks or strips of wood of uniform size between the cases for the purpose of ventilation and inspection. The cases may then be stored in barns, coach-houses, or cart shed with good doors, preferably facing north, and where an even temperature of about 40 degrees can be maintained, free from draughts, but sufficiently ventilated to prevent over-sweating of the fruit for the first fortnight after storing. It is of the utmost importance that the walls and floors of such fruit stores should be clean. Limewashing the walls, and if on an earthen floor a little dry lime brushed over it will generally ensure a sweet atmosphere. The lids of the egg cases should be tied in bundles, and, if it is not convenient to store the cases for another year, they may be disposed of to egg merchants, immediately they are cleared of apples, at first cost if kept clean.

GREASE BANDING.—The females of the winter moth may be expected to begin to ascend the trees to deposit their eggs after the middle of this month, so that to ensure an effective catch the sticky bands should be put on immediately. A strip of grease-proof paper should first be tied

on well up the main stem of the tree, two or three feet from the ground, if possible. Then, with a thin flat piece of wood, smear on a coat of tanglefoot, now well known to be one of the most lasting and effective moth catchers on the market. Some advise that it may be applied direct on the bark of trees over five years old. While one application may not affect the outer skin of the bark to any appreciable extent, I am of opinion that annual grease-banding direct on to the bark is injurious, and as the grease-proof bands supplied by the vendors of tanglefoot are so cheap I would strongly advise their use.

ROOT PRUNING.—Towards the end of this month trees restricted to a given space and that are showing a tendency to make too much wood at the expense of fruit, or those which may have been planted in too rich and loose garden soil and making too much rank growth without fruit buds, should be corrected by shortening the long, bare anchor or taproots, which produce this over luxuriant and unfruitful condition. No hard and fast rule can be applied to the extent to which the roots may be shortened, but care should be taken not to reduce the roots to the extent of enfeebling the tree so that no wood growth might be produced the following year. Cordons and other small trees may be lifted and replanted with very little curtailment of the roots to produce the desired effect. The same care is necessary in pruning roots as in pruning branches—*i.e.*, all cuts should be made with a sharp knife or sharp secateur. The wounds made in this way heal quickly, and a better system of fine or fibrous roots is formed from the point where a clean cut is made than if cut roughly with a spade. Trees too large to be lifted and growing too luxuriantly may be corrected by a partial root pruning from one side, and if not quite enough at first the roots on the opposite side may be dealt with the following year. Transplanting trees for the purpose of re-arranging may begin towards the end of this month and be carried on next month—subject to soil and weather conditions—better than during mid-winter or spring, as the wounded roots heal quickly while there is still a little of the summer's warmth in the ground and an upward tendency in the sap. If the work is carefully done the trees should not receive any appreciable check. Newly planted trees should be secured against rocking with the wind either to one sufficient stake, or, if large trees, to three stout pegs with guy ropes.

TYING YOUNG TREES.—All ties on young trees requiring further support should be renewed this month, as some may be getting too tight and others decaying, and if the ties give way the tree is liable to injury from rapping against the stake. If trees are not properly staked they are better without stakes. Half standard young trees of Bramley suffer more from wind for the first three years after planting than most other sorts, their large leaves and stiff branches giving the wind a greater grip of them. The tie should be placed at the top of the stake, which should stand approximate to the height of the stem and be clear of the branches, except in the case of pyramids or bush trees. The best quality cocoanut fibre coir yarn makes an excellent tying material, as it does not contract or expand with changes of the weather. In tying, first place a

band of cloth or sacking round the tree to protect the bark; wind the cord for tying two or three times round the stake to form a pad for the tree to rest against, and cross the cord between the tree and the stake, clasping in the tree and tying behind the stake. For heavy trees several ply of the cord should be applied crossing between the tree and the stake.

ORDERING FRUIT TREES.—Intending planters should place their orders with their nurserymen this month, as they generally begin to execute orders in November, and in the rotation in which they are received. The rule of "first come first served" not only holds good, but the first served are invariably best served.

CULTIVATION.—This part of the fruit grower's work is hardly ever out of season. Many bits of spare ground between fruit trees should be turned to good account in growing cabbage for spring use, to meet a likely scarcity of food stuffs in spring owing to the war.

The Vegetable Garden.

By ARTHUR HORTON, Gardener to Colonel Claude Cane, St. Wolstan's, Celbridge.

THE principal work in the vegetable garden is generally considered to be practically over for the season. Certainly very little can be done in the way of planting or sowing seed, yet many other things will require immediate attention if good results are expected.

A sharp lookout should be kept for any signs of early frost, and protecting material got ready for tender subjects.

During this month frost may put in an appearance for one night and do considerable damage, then not reappear for a month or six weeks. French and runner beans are very tender and easily damaged by frost. Measures should be taken to protect them with any suitable material convenient. It is surprising how little is sufficient to ward off a few degrees.

Since the present war in Europe began much has been written both in the daily and weekly Press on the necessity and importance of increasing the area under cultivation, and also on preserving the various crops already or about to be harvested, vegetables included. It is unnecessary for me to go over the same ground, and it would be difficult to add much to what has been so exhaustively treated by able writers on the various subjects. Having read several articles on the ways and means of preserving fruits and vegetables, I have not so far noticed the simple process of preserving French and runner beans with common salt. All that is required is a water-tight vessel, a crock or pipkin answers the purpose admirably. Slice the beans in the same manner as prepared for cooking, then place a layer of salt and beans time about. Care must always be taken to add sufficient salt or the result will not be satisfactory, neither is it advisable to use beans that are in anyway hard or stringy. The preserving can be done anytime at intervals from the time the plants commence bearing in August until they are cut down with frost, and will keep in perfect condition until the new supply is ready for use the following year. The advantage of this process is that there is practically no

expense in carrying out the work. The writer has carried out the above for several years with unvarying success.

LIFTING AND STORING ROOTS.—If not already accomplished the lifting and storing of potatoes should be completed without delay, provided the weather is favourable. The best method in my opinion is in pits or clamps if properly carried out. The site chosen should be high and dry, over this place a layer of dry straw, build up the potatoes to a ridge and cover with a good thickness of straw, over which should be placed about six inches of earth. To prevent heating bunches of straw may be placed through and above the soil every two or three yards along the ridge of the pit, drain pipes with a slate over the top to prevent rain entering will answer the same purpose.

CARROTS AND BEET may be stored in the same manner, but it is advisable to always have a few in the root shed for present use, which should be covered with fine ashes or sand, being more convenient to get at, especially during severe weather.

PARSNIPS are best if left in the ground and lifted as required, but it is a good policy to have a few under cover in case a long spell of frost sets in.

ONIONS when thoroughly ripe should be tied up in bunches or ropes, afterwards hanging them up in a cool shed, where they will keep better than if stored on shelves.

SPRING CABBAGE.—As advised in last month's notes, October is the best time for making the main planting of spring cabbage, being less liable to bolt than if planted last month. After the quantity required is planted it is a good plan to prick out a good few about 6 inches apart, these come in useful for making up blanks later on.

PLANTS OF ENDIVE AND LETTUCE should be lifted with good balls of earth and planted in frames. If frames can be spared, a good sowing of the latter should be made during this month. One of the best varieties I know for this purpose is Drummond's Hardy Winter.

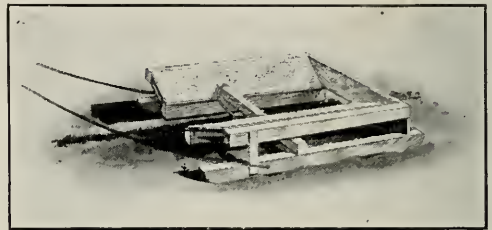
As soon as young cauliflower plants are large enough to handle they should be pricked out into frames about 4 inches apart, remove the sashes on all favourable occasions. Some means should be taken to protect parsley for winter use either by lifting and planting in frames, or by placing frames over the beds. The earthing-up of celery and leeks should be completed without delay, choosing a fine day for carrying out the work. A good sowing of spinach should be made on a south border about the middle of the month. This sowing will be ready for use during April and May, a time when good vegetables are extremely scarce.

The Wisley Trap.

A SLEDGE TRAP FOR TURNIP FLEA BEETLE (TURNIP FLY).

MANY are now sowing, or have sown, turnips, and it is probable that the young plants may be attacked by flea-beetles (turnip fly). These are very small, bluish beetles, that jump nimbly like fleas, eat small holes in the young leaves of the plants from the time that they first come up, and check the growth of the seedlings very considerably.

The following simple device has been invented by Professor Lefroy, Entomologist to the Royal Horticultural Society's Gardens, Wisley, and serves as an effective trap for these beetles. To a frame made of six pieces of half inch deal 20in. long, two pieces of thin board (20in. by 5in.) are fixed so as to slope outwards and upwards, on the sides of the frame. These sloping boards are held apart by a cross bar and an end piece, so as to have four clear inches between them at the bottom. The two bottom outer pieces of the frame are made ½in. deeper than the inner pieces, the whole trap riding on the outer pair as a sledge on runners. The ends are rounded off to help this. The sloping boards, the end pieces facing them, and the cross piece between them are greased. From the cross bar between the sloping pieces hangs a loop of stout string, and strings four feet long are attached to the front top corners.



THE WISLEY TRAP FOR THE TURNIP FLEA BEETLE.

If now the trap is drawn down each row of turnips so that the young plants pass under the cross bar and are brushed by the string loop, the beetles leap up and alight on the sticky boards. There they perish.

If made of deal this apparatus is so light that a child can draw it along the rows; it is best for two persons to draw the trap and for them to walk a few feet away on each side so that the beetles are not disturbed until the sticky boards reach them. If two persons are not available, one can work the trap, drawing it with outstretched arm, and walking, so that the shadow falls on rows already done.

Satisfactory sticky substances tested include: Messrs. Wood & Son's Currant Gall Mite Grease and Smearing Grease (1s. 3d. a tin); The S. P. Charges Co., St. Helens, "Morlar" Hop Wash (1s. a tin).

This little device was designed to deal with the hordes of flea beetles on the turnips at Wisley. It works so pleasantly and there is such a charm in mopping up the flea beetles that the above description is published. The method may no doubt be adapted to large cultivations by making a number of sledge traps in series so as to do, say, five rows at once; but the present pattern is intended for garden use.

The accompanying illustration shows the ease with which the "Wisley" trap can be made. Those who wish to purchase traps can obtain them from Messrs. Wood & Son, North British Wharf, Wood Green, N., carriage paid for 3s. 6d. The traps may also be obtained, carriage forward, from Mr. Paddle, 26 Loring Road, Isleworth, at 2s. 3d., and from Messrs. Walker & Sons, London Road, Isleworth, at 2s. 6d.

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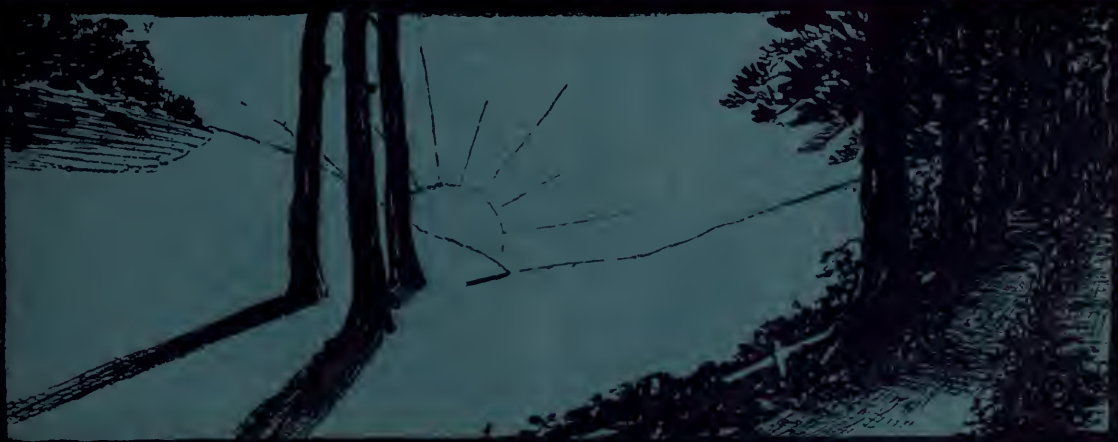
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EDITED BY C. F. BALL.

The Making and Planting of Rock Gardens.

By L. B. MEREDITH.

WHAT a different picture rises before us when we compare the rock gardens of yesterday with those of to-day—the former an ugly inartistic mass of stones, with here and there a few sickly plants struggling to live in the most unsuitable soil and surroundings that could be devised! Small wonder then that the rock garden of twenty years ago eventually became the dumping ground for the refuse of the garden. Let us leave this incongruous scene and look at the modern rock garden. In it the stones, instead of being bare and exposed, are clothed with masses of purple Aubrietia, pink and yellow rock Roses, blue and white Campanulas, crimson Thyme, &c., blending their glorious colours together in such a manner as few artists can faithfully portray.

In writing this article my object is to give the would-be owner of one of these gardens a few simple instructions how it is best to attain the object desired, showing the difficulties likely to be met with, and how they can most easily be overcome.

When making a rock garden the primary and most important point to consider is position. The ideal spot is some sloping ground facing south-east, with a background of trees for shelter on the north and north-east; these trees, however, should not be closer than some 15 to 20 yards. But unfortunately the ideal can but seldom be realised, so it is best to show what especially to guard against. Avoid, above everything, overhanging trees; do not make the garden in a place where there is any doubt about obtaining effective drainage, or where the sun cannot reach at all times of the year. As already shown, it is best when possible to have shelter from the prevailing cold winds.

Having selected the site, the next point to consider is the general scheme; this of necessity will greatly depend on the contour of the land available. Let me impress on the reader when laying out a rock garden the importance of

having some definite plan, such as a little valley or miniature mountain pass: let all paths lead definitely from one point to another, and be laid out in such a way as to appear as if it was the one and only line this path or paths could take. I prefer laying out the main paths first, and using them as a basis to work up the banks to the required formation.

Perhaps a few suggestions as to the general scheme would not be out of place here.

Supposing the site selected to be a strip of ground, say 30 yards by 20 yards, rising gradually throughout its entire length, this could, with comparatively little labour, be converted into a charming miniature valley by digging out a sinuous path up the centre. If, on the other hand, the face of the slope was only 20 yards wide, a very attractive scheme would be to lay out the main path at the foot of the slope with smaller paths converging from it up and along its face.

Level ground is harder to deal with; but here again much can be done by digging out paths and raising the ground adjoining with the soil removed in doing so.

The great art in designing a rock garden, or in fact any garden, is to preserve proportion throughout.

Having decided on the main scheme and paths marked out, prepare the banks roughly, making the desired formation with as much variation in gradient as possible and avoiding repetition. When digging out the paths do not cover the good top soil with the inferior subsoil. If this cannot be removed altogether, it should be placed where the highest parts are required, and even then it is best to take off about 12 inches of the good soil first; this will entail more labour, but it is worth it.

While the formation of the banks and digging of the paths are being made, great attention should be given to that all-essential point, drainage. It is possible to overdrain, but it is

far easier to err on the other side. It should always be borne in mind that stagnant water is absolutely fatal to all rock plants; so remembering this, make ample provision to get rid of all superfluous moisture, and the time to do this is in the initial stages. The extent of drainage required will, of course, entirely depend on the nature of the soil and subsoil, the subsoil especially; contour of the land, &c.; so it can be easily understood no specific instructions can be given on this point, except to make sure there is ample fall at the main outlet or outlets, for an ineffective drain is worse than no drain at all.

Having prepared the ground as already shown, the next operation is to place the rocks in position. A great deal will, of course, depend on the size and class of rock available for the purpose. Sandstone or mountain limestone are considered by many to be the best, but failing either of these almost any kind of roughly-hewn rock will do; the greater the variety of shapes the better, and as large as can conveniently be handled. Avoid round boulder stones, or thin slabs—the former because it will be found impossible to fit one closely against the other on account of their convex faces, and the latter because it will be most difficult to vary the formation as much as is desirable. Have nothing to do with artificial rocks, clinkers, bricks, or anything of a similar description, and on no account use old tree stumps or wood in any form.

The main principle governing the construction of rock work is to aim at copying nature. If you study the face of a quarry you will find that the rocks are laid in regular stratas, with a general tendency to slope or dip in a well-defined line; so keeping this in mind try and maintain throughout this dip in the rockwork.

At least one-third of each stone should be buried in the ground, and before doing so be sure that the bed prepared for it is made quite solid, for if not the first heavy rain will shift the soil, and many hours hard work be undone. The rocks should lie as close to each other as possible, and endeavour to make each appear as if it were part of those adjoining. Pay particular attention to packing in the soil all round each rock; if this is not done an air space may be left which will prove fatal to any plants whose roots find it out.

The following hints may be useful when building the rock work:—

Always bear in mind that rocks are placed not merely for appearance sake, but with the primary object of keeping up the soil and preventing it being washed down by heavy rain.

The banks may be built into a series of small

terraces; these should vary in width, height, and general contour; and in order to get this variation they may in places merge into each other, keeping at the same time the general dip of the rockwork.

It will, of course, be easily understood that the steeper parts of the bank require more rocks, and for this reason it is well to keep the larger rocks for the most abrupt formation. The gradient of the terraces should in no place exceed 6 to 8 inches in 2 feet; if steeper than this the soil will be washed off and the necessary moisture will not reach the roots of the plants, for most rock plants require ample moisture, provided, of course, there is efficient drainage. For the same reason all rocks should slope towards the bank, thereby insuring that moisture will be directed towards the roots of the plants growing over them, and also allow the rain to reach those planted at their base.

It will often be found impossible to avoid having vertical fissures between rocks. These fissures should always be made so that the wider part is at the top; if not, it will soon be found that frost and rain will quickly remove the soil that has been so carefully packed in between. In large fissures small wedge-shaped pieces of stone should be inserted, but here the thick end of the wedge should be at the bottom, so that when the ground settles there is no danger of an air space arising.

I advise making a certain number of these vertical fissures, as many rock plants prefer to grow in such positions. Horizontal fissures should also be formed by laying one rock over the other with flat pieces of stone between to give the space necessary for soil; be very careful in the building to slope the upper surface of the bottom rock well back towards the bank, and the top rock should be placed so that the bottom rock forms a ledge of at least 2 or 3 inches to catch the rain.

I always prefer building up the general formation of rockwork first, this being done, as already pointed out, with the primary object of keeping the soil in position; afterwards smaller stones can be added to break a too monotonous outline.

Avoid too many rocks, better to err on the other side: a few well placed look far better, and are equally efficacious.

In order to facilitate weeding and planting operations, flat stones should be placed on the surface of the ground here and there through the garden.

The sides of sunken paths may with advantage be edged with rock, but again avoid anything the least formal.

(To be continued.)

Decorative Roses.

By MRS. BUTLER, Priestown, Co. Meath.

DECORATIVE Roses may roughly be placed in three divisions :—(1) Ramblers, as Dorothy Perkins, &c. ; (2) single and semi-single, as Irish Elegance and Old Gold, &c. ; (3) Roses of other types, as General MacArthur, Mdme. Edouard Herriot, &c.

The ramblers are quite a class in themselves, and their cultivation and arrangement give endless opportunities. Personally, I do not think their possibilities are properly appreciated. To begin with, they are cheap, and if one plant is bought, anyone not in a hurry to do everything at once can in a couple of years have an almost unlimited stock from cuttings. Of course they have only one flowering period, but then it is a longish one, and the wealth of bloom from large collections of them is a marvellous sight.

I have a large double tennis ground wired in, and growing all round on the wire are dozens of Perkins and Dennisons, and I cannot think of any prettier display from mid-July to end of August, and after the main bloom has gone little clusters of flowers keep coming out till the frost cuts them off finally.

Many people do not get by any means the best results from their ramblers, as it appears to be the idea to plant them growing up a pillar or any suitable place, and tie them up year by year and cut out nothing but dead wood. To get really good results much more trouble must be taken. As they grow, the new shoots must be tied up and retied every week or so, to prevent breaking, and about September or October the whole bush should be untied and most, or all, of last year's wood cut away. Sometimes the new growth is not good, from dry weather generally ; then they cannot be treated so drastically, and one has to do the best one can with the freshest looking of the old wood ; but anywhere where water is plentiful and can be given in dry seasons, there need be no fear of want of new growth. Ramblers are very strong and healthy ; the only bad enemy they have is greenfly. Given plenty of well rotted manure in the autumn and plenty of spraying for fly in spring and summer, anyone can have a marvellous display. As to what kinds to grow, the pioneer Dorothy Perkins is very hard to beat, but Dennison's introduction, Dorothy Dennison, is quite as free a grower ; then Excelsa is most distinctive, and White Dorothy is very pretty, though it will insist on having a few pink flowers. While on ramblers as decorative Roses, I hardly think one could describe the Crimson Rambler as being such. It makes a fine bit of colour in the distance, but I never saw anyone who could arrange the cut blooms to advantage, and it is so subject to mildew as to be a nuisance.

As to where to put these Roses, it is easier to say where not to put them. They apparently do not get enough air on a wall ; but anywhere else—wire railings, trellis work, posts, an old tree stump, or even growing trees, creeping about on banks, through hedges, or even on the stereotyped pergola. Their green is so fresh and bright that even when not in flower they are effective.

While on the subject of ramblers to jump to the opposite extreme, two Polyanthas may be mentioned—Madame Norbert Lavavasseur (the baby Crimson Rambler) and Maman Lavavasseur (the baby Dorothy). They only grow about two feet high, and frequently have two flowering periods, and, as far as I have noticed Madame Norbert Lavavasseur is not at all as subject to mildew as its grown up type. Massed in large beds these Roses give a splendid colour effect, and they are so opposite in every way to the Crimson Rambler and Dorothy Perkins, except in flower, which is the same, that they make a most interesting contrast.

Another Rose that I really do not know whether it should be classed with the ramblers or with the singles is Carmine Pillar. It is much earlier than the ramblers and is practically out of bloom by the first week in July, and has never made any attempt at a second bloom, but when it is out it is the most brilliant Rose in the garden. The proper place for this Rose is an old apple tree. I have seen it one mass of bloom for over twenty feet, and I would willingly spoil an apple tree for it ; but apparently there is no need to do this. I put one on an old tree that had almost given up bearing, and since it has been on it there has been more apples each year than there were altogether in the preceding ten years. I suppose this was the result of very drastic and rather indiscriminate pruning to give the Rose more light and air and the manure the Rose has since got, but whatever the cause the result is as I say.

Some of the single Roses are quite the most decorative of any, lending themselves to tasteful arrangement and lasting longer than the average of cut flowers. All Alex. Dickson's "Irish" class are suitable for this purpose, but I. Elegance and I. Fireflame are the best. Semi-single, such as Simplicity and McGredy's Old Gold, are charming. Their growth and habits are too well known for me to say anything about them.

Roses of the General MacArthur type are really perpetual bloomers. There are any number to select from, and a little intelligent observation at shows and the study of some of the numerous Rose catalogues we have showered on us so freely will enable anyone to make a choice to suit their own taste.

Shrubs and Trees with Ornamental Fruits.

By J. W. BESANT.

IN these rather anxious times it is somewhat difficult to concentrate one's mind on purely gardening matters, since the feeling is constantly present that there are more serious things afoot. It is a relief, however, to return occasionally to the quiet joys of the autumn garden and even to make plans for the future. Seldom have the hardy flower borders yielded such a riot of colour over so long a period, September and early October rivaling gay July in wealth of beauty and brilliance. Now, with the falling leaves and fading flowers, Nature, as if still determined to prolong the stay of beauty, reveals myriads of brilliantly-coloured fruits not less valuable in grey autumn days. And what a galaxy of colour is to be found among these fruits—brilliant red, orange, scarlet, pink, coral, yellow, and pure white, surely sufficient to satisfy the most exacting gardener.

As yet plants with showy fruits are used only in a more or less haphazard way, planted oddly here and there. Some day, perhaps, we shall get beds and borders of these planted only with regard to their autumn effect, much as we now plant other things for the effect of their flowers. One can imagine a very striking bed, for instance, of half-standards of *Cotoneaster Franchetii*, with its brilliant sealing-wax-like berries, over *Symphoricarpus lævigatus*, loaded with pure snow-white fruits, the bed edged perhaps with *Berberis Wilsonæ*, which has pretty pink fruits. The Barberries alone provide a host of kinds with ornamental fruits, and are withal so easily grown and so varied in habit that no garden need be without one or more sorts to gladden

the autumn days. In addition to *B. Wilsonæ*, among the newer kinds we have *B. aggregata* (see illustration), which loads itself with dense clusters of glistening pink fruits. A mass of this species would be a most attractive feature in any large park or garden, alone or combined with an ever-green groundwork. Other good new sorts are *B. subcauliata*, with fruits somewhat like those of *B. Wilsonæ*, but smaller, and *B. Prattii*, with clusters of red berries covered with a purplish bloom. *B. Stapfiana* has small pink and red fruits, and the plant is of dwarf, rather prostrate growth. The blue berries of *B. Darwinii* are not the least attraction of this

very popular and beautiful shrub.

Among the *Cotoneasters*, one of which has been already noted, are many valuable fruiting plants. One of the most satisfactory of all is the old and well-known *C. frigida*, a Himalayan shrub, which bears corymbs of red berries in great profusion and retains them for a long time. This species may be grown as a large



BERBERIS AGGREGATA, a new Chinese Barberry, with beautiful red berries.

shrub or small tree, and can be pruned to form a standard or half-standard, thus allowing of its being planted in various positions. Among the newer sorts *C. Henryana* is useful, though the fruits are small, and not retained so long as those of the previous species, while a somewhat similar and very graceful shrub is *C. salicifolia rugosa*. *C. dielsiana elegans* is stiffer in habit, the branches assuming a more upright form, but bearing quantities of reddish berries. *C. bullata* is particularly fine in fruit, the berries being large and brilliant red; it is fairly new, and a very decided acquisition, while *C. moupinense* has black berries. It is only necessary to mention the older kinds of *Cotoneaster*, such as *C. rotundifolia*, *C. buxifolia*, *horizontalis*, and others, to remind gardening people of the charm of their bright fruits contrasting with the dark green leaves.

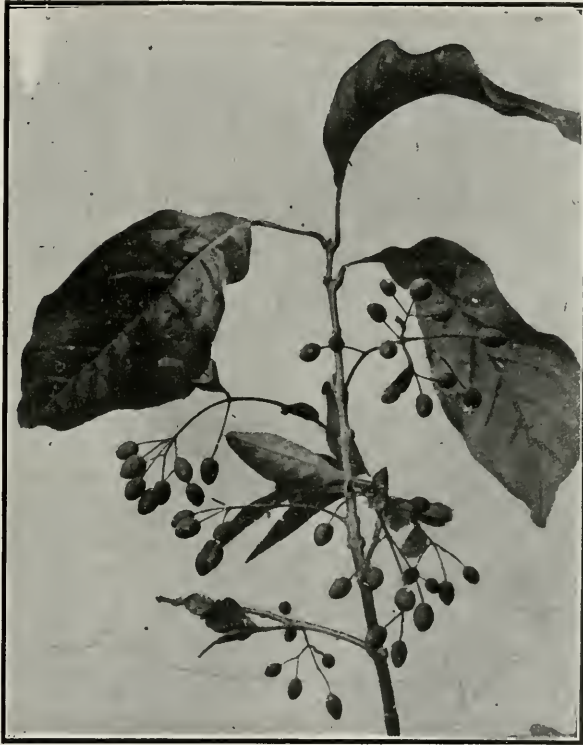
Even the Roses, which are mostly associated with the beauty of their flowers, are not to be despised for the autumn charm of their fruits. The Japanese *Rosa rugosa* is distinctly handsome in its autumn garb of orange-red fruits and golden leaves, while a bush of the large-fruited *Rosa pomifera* is a glory in itself. A very different subject is *Rosa alpina*, a dwarf grower, spreading freely by stolons, and covering itself in autumn with long bright red "hips." These are all species of Roses, and to some minds anything which savours of the botanical in Roses is sure to be dull and uninteresting; this idea, however, is fast losing its hold, and people are beginning to realise that plants may have other beauties than brilliant flowers; Roses and Honeysuckles are favourites in gardens for their flowers, but how many have considered the latter for the ornamental value of their fruits. When walking through a collection of Honeysuckles one is often surprised and delighted with the beautiful fruits of some kinds which had not been conspicuous in flower. *Lonicera Caprifolium* has clusters of orange berries nestling in the cup formed by the junction of the leaves, and likewise *L. Sullivanii* has red berries. *L. cœrulea* derives its name from the blue fruits it bears, and the pale translucent berries are characteristic of *L. translucens*. Perhaps the greatest surprise of all is to come on a bush of Dr. Henry's Honeysuckle, *L. Henryi*, laden with dense clusters of purplish fruit; and one can imagine the worthy doctor's delight when first he found his namesake growing wild in far Cathay.

Among the spindle trees there are several sorts which bear ornamental fruits. The common one is one of the best, and is a beautiful sight when well furnished with its dangling fruits, the pink fleshy covering just opening to reveal the yellow seeds within. *Euonymus*

latifolius and *E. macropterus* are two broader-leaved kinds of greater beauty.

Cratægus Pyracantha—sometimes called the Fire Bush—is a wonderful sight in autumn when smothered in its orange-coloured berries. In common with the Rowan, though it suffers from the depredations of birds, the fruits being no sooner ripe than they begin to vanish. A somewhat similar, but less hardy, shrub is *Pyracantha angustifolia*, which ripens its fruit very late in the year, and is frequently a glorious sight at Christmas. A warm

sunny wall is necessary for the proper development of this rather tender species, but many less worthy things are accommodated on walls, while there is the additional advantage of its being evergreen. The fruits are deeper in colour than those of *C. Pyracantha*. The Sea Buckthorn *Hippophaë rhamnoides* is a charming study in grey and gold during autumn and winter; the berries are orange-coloured and very ornamental, but as the plant is unisexual it is necessary to plant staminate and pistillate plants together to ensure a good crop of fruit.



FRUIT OF THE FRINGE TREE (*Chionanthus virginica*) (see page 166).

An uncommon shrub, suitable for a wall, is *Raphithamnus cyanocarpus*, which is evergreen, and occasionally produces a crop of handsome blue berries which always attract attention. This plant cannot be recommended as perfectly hardy everywhere, but can generally be accommodated on a wall not too directly exposed to the sun. Among larger growing things the Thorns are, of course, conspicuous every autumn; though the common species is good, it is exceeded in beauty of fruit by some of the American kinds, which produce larger and brighter coloured haws. *C. coccinea*, the Scarlet Haw, is very conspicuous in winter, and well worth planting in parks and pleasure grounds. Among the *Pyruses*, too, are numerous varieties which bear ornamental fruits, particularly the Crabs, such

as John Downie, Dartmouth, Transcendent, &c., which frequently load themselves with red and yellow fruits, which look very pretty on a clear autumn or winter day.

Pyrus decaisneana, which is of a different type, is extremely handsome in fruit. The fruits are produced in dense clusters, and, though individually small, are of such a brilliant red as to be quite conspicuous from a distance. There are many other ornamental fruiting trees, but it is unnecessary to present an entire catalogue of names here. It is worth recording, however, that the red-fruited variety of the Sycamore—viz., *Acer pseudo-platanus erythrocarpum*—is perhaps the most ornamental fruited of all our large forest trees.

Chionanthus virginica.

VERY seldom do we see the fruits of the Fringe Tree in this country, but Mr. Walpole kindly sends us from Mount Usher, Co. Wicklow, a spray, from which our illustration (p. 165) is taken, and he writes:—"The berries on this spray are green, but turn purple afterwards; as soon as they do so the birds eat them. The bush is about six years old and about five feet high; it is planted in the part we call the new ground—that is, where the Eucalypti are planted. It has flowered well for some years past, but never fruited before. Another bush planted close to it flowered this year nearly as well, but did not fruit."

The single fruits are oval, about half an inch long, and in appearance like small olives; in fact *Chionanthus* is closely related to *Olea*, and differs principally in the segments of the corolla being barely united at the base.

The scented flowers are snow white; they open in May, and hang in long bunches; from the corolla being divided into narrow segments the name Fringe Tree is given.

The leaves are oval, from four to eight inches long.

In this country, it is only seen as a bush, but in America reaches thirty feet high.

Chionanthus virginica is a distinct and beautiful shrub when in flower, and grows well in any ordinary good soil, provided it is not too dry, and prefers a sheltered place from winds. It is not an easy plant to root from cuttings, but American seed germinates freely, or it may be budded on the ash—a practice not to be generally recommended.

An Appeal to Garden Lovers.

HIS MAJESTY THE KING is setting a worthy example to horticulturists and arboriculturists, and intends to carry out a considerable scheme of planting on the Sandringham estates to provide a large amount of employment. We also note that a portion of the Sandringham estate will be placed at the disposal of the Cambridge School of Forestry for use as an experimental and demonstration area in connection with afforestation.

We are also pleased to hear that several people are following the King's lead by planting new Rose beds, making a general planting, or renovating glasshouses so as to give employment

Of course with the heavy war cloud hanging over us all it is a time for general economy, but those who have the money, and can afford it, should not be too stringent in their gardens, but bear in mind the numerous dependants on the gardening industry, both private and commercial. Many nurserymen have large wage bills to pay weekly, and have expended much capital in raising stocks, maybe of roses, shrubs, fruit trees, plants or bulbs, and unless these are cleared to pay the employees' wages, it may lead to more unemployment. It is a case where the small garden owner can help to a certain extent as well as the owner of a large garden, each according to his purse.

[We all look forward to the time when the war is over and peace is declared, so in gardening we know that we always have to look forward, and not forget that autumn is the time to plant in order to have a bright and fruitful garden for the following year.—Ed.]

Chrysanthemums.

DEAR SIR,—I enclose you photo of that fine old, but still useful, variety of *Chrysanthemum Vivian Morel*, as I thought it may be of interest to readers of IRISH GARDENING. There are few varieties that have stood the test of time with *Vivian Morel*; its colour is a pleasing mauve, and its freedom of growth specially adapts it for a specimen plant. The above specimen is a two year old plant in a twelve-inch pot carrying one hundred and twelve good blooms.—W. H. G.

THE glorious summer of 1914 has once more demonstrated the value of sunshine to plant life, especially the *Chrysanthemum*, which is one of those plants that require a good, long sunny season to encourage short-jointed, well-ripened growth to produce blooms of good quality either for exhibition or greenhouse decoration; for the latter purpose the *Chrysanthemum* has no rival. There is no plant that gives us the amount of bloom in such delightful variety of colour and lasting qualities when cut for vases or arranged in the conservatory at comparatively little expense of growing. For either of these purposes we can divide them into two sections—the large handsome exhibition blooms and the useful decorative section, which consists of the ordinary bush, Japanese and singles. The former do not pay to grow only for the one purpose, as they do not last long enough to repay for the amount of trouble expended on them. Moreover, we have such a delightful selection of Japanese bush varieties and singles that they have almost ousted the large blooms from many places altogether.

Culture is most simple and within the reach of any amateur with small greenhouse and cold frames. Select cuttings in the month of February, insert three round the sides of three-inch pots filled with light sandy soil, well watered before putting the cuttings in. When finished place in a cold frame on an ash bottom facing south. Keep close till they are rooted, only giving water when necessary, as they are very subject to damp at this stage. Once they are rooted a little air should be given, which can be increased on fine days. As root action and growth

increases, potting on will be necessary into five-inch pots : this time a little coarser material—viz., fibrous loam pulled to pieces, with leaf-mould and sand added, and a little soot. Pot fairly firm, and when the plants have taken to the new soil give them a pinch at about five or six inches to make them break. Watering must be carefully attended to : never allow the plants to become dry ; give plenty of air, and occasionally spray them over with the rosecan to encourage growth. By the end of March the lights of the frame can be removed altogether on mild days. The final potting is the most important, as the plants have to remain in the pots for a long period. Prepare pots of various sizes, from eight-inch to

Morel, Formality, Merstham Yellow, Wm. Duckham. In springtime these should have as much of the old soil removed as possible. Potted on in the usual manner they make splendid specimens. The accompanying photo is an old plant of Vivian Morel, carrying 112 blooms, treated likewise. Early staking is a most important matter : do not overdo it or the plant will appear stiff and ugly. When the plants begin to show signs of new growth they should be stood out singly in a sunny position on an ash bottom. Give plenty of room. When the pots are full of roots commence feeding liberally with changes of artificials, sheep manure water and soot water. Keep a close watch for insects. Most of the



A two year old plant of *CHRYSANTHEMUM VIVIAN MOREL* carrying 112 blooms.

ten-inch, have them clean and well crocked to ensure good drainage. Discretion must be used in sizes of pots, as some of the more delicate singles do not need the amount of root room as the more stronger growing Japanese varieties. Soil.—Good rough fibrous loam two parts, old spent mushroom bed one part ; if this is not at hand leaf-mould of good quality, half bushel coarse sand, a ten-inch pot of fine rubble, also same of soot well seasoned ; to this add eight-inch pot of bone meal : mix thoroughly : keep turned for a few days : pot the plants very firm, fairly low in the pots to keep them dwarf : stand them outside in a sheltered position till they get a start in the new soil ; water sparingly : use the syringe freely till well rooted.

There are a few varieties which commend themselves for large specimens, such as Vivian

varieties will require stopping again about the middle of July, disbud as soon as the buds are large enough to handle, this will give nice sprays for cutting or specimen plants. Commence housing the plants about the second week in October.

A few suitable varieties are the following :—White—Formality, Money-maker, Mrs. J. Bevan, Felton's Favourite, Souvenir de Petit Ami, Mrs. Roots. Pinks—Wm. Duckham, Vivian Morel, N. C. S. Jubilee. Yellows—Merstham, Sunflower, Mrs. Greenfield, Hon. Mrs. Sopex, W. H. Lincoln, Soleil d'Octobre. Singles—Sylvia Slade, Sam Nash, Harold Slade, Ideal, Sandown Radiance, Mensa, Hector Forbes, J. T. Angus, Edith Pagram, Mrs. R. C. Pulling, Winifred Perry. The above are a selection of charming colours.

W. H. GREEN.

Plants for the Moraine.

By MURRAY HORNIBROOK, Knapton, Abbeyleix.

IN IRISH GARDENING OF JUNE, 1914, I described some moraines, with special reference to their composition and texture. In the present article I would refer more particularly to plants suitable for the moraine.

It is assumed that the moraine is now made, and is composed of a mixture and texture suitable to the climatic conditions of the moraine-maker's locality. His next difficulty will be selecting his plants, and he will find that fully 95 per cent. of his Alpines will do as well in the stone chips as they do in the soil. A few do not like the moraine very much, and a larger proportion do not like the soil at all. He must, therefore, give the latter the first consideration for situation and space, and, having provided for their requirements, then fill up the moraine with those selected from the large number of moraine lovers whose habit or constitution renders them most suitable for moraine treatment. To my mind the ideal moraine plant is one that hugs the surface of the stones like a lichen or a moss. Of course, in a large moraine one can welcome every size and shape, but for the small moraine, such as one sees in most rock gardens, the surface-clingers are far more effective, and big, floppy plants should be avoided; avoid also rampant spreaders.—I spent three weary days in following the ramifications of a small root of *Linaria pallida* planted in ignorance of its habit of spreading about a hundred times as fast underground as it does up above. If the moraine be of limestone, choose for preference plants having silver or grey in their foliage, which is likely to be accentuated by the lime. It will be found, as a rule, that moraine treatment dwarfs the habit of a plant, makes it compact in growth, and increases the brilliancy of the tone of its flowers. One word as to planting. Be careful to shake most of the soil from the roots, and keep a supply of very fine crushed material to put round them before the ordinary moraine material is replaced in the planting hole, otherwise the plants are liable to die from drought arising from the air getting in between the larger moraine stones. Water at once round the roots after planting, and, if the weather be at all windy and dry, water carefully once or twice a day until established. Watering is not so necessary in autumn planting, but very necessary when planting in April or May. Planting may be done in spring, summer, or autumn. I find it more satisfactory to plant deciduous plants in spring; the others I plant at any time when there is not a frost.

The following plants are all quite dwarf or creeping, unless otherwise described:—

Of *Alyssums* the gem is *A. serpyllifolium*, with white foliage and yellow flowers. Close to it and very common are *A. oivense* and *A. idæum*. *A. Bornmulleri*, *A. olympicum*, green foliage, and *A. podolicum*, green foliage and white flowers, are also good, and the rosea form of *A. spinosum*, with its hard spiny silver branches, is a gem, but stronger in growth than the others. All grow freely in limestone. *A. Lagascæ*, with silvery foliage and rosy-pink flowers, is very rare, and with me prefers sand in full sun, but it prospers in moraine or Glasnevin.

Armeria caespitosa is a delightful miniature form of sea pink for a situation not too dry.

Arenaria tetraquetra only flowers with me when planted in moraine. It is the choicest and most distinct *Arenaria* I know. I also find *A. ledebouriana* very attractive, with foliage not unlike a creeping asparagus; both have white flowers. *A. laricifolia* is distinct.

Androsace villosa makes a nice tuft, and is prodigal in its display of white flowers. This and *A. sempervivoides*, with its dull green rosettes and crimson flowers, are the only *Androsaces* I can grow without winter glassing, and are both in moraine. *A. sarmentosa* (see illustration) has swamped another moraine and taken it all for itself, but it needs a glass.

Asperula athoa looks particularly happy in limestone, with its grey stems and their pendant pink flowers.

Bellium bellidioides, a lichen-like white Daisy; *Bellis alpina*, taller flowers, with red reverse (sometimes all red), and *B. cœrulescens*, with its pale violet blossoms (not very hardy), are all useful.

Of *Arabis* I would recommend but few. *A. Androsace*, most distinct foliage, covered with fine silky hairs; *A. Kellneri*, dwarf and compact, with greyish foliage and white flowers; and similar in habit are *A. Sundermanni* and *A. Ferdinandii-Coburgi*. There is also a tiny *A. dacica*, with pale pink flowers, which is usually an annual, but sows itself not too freely.

Campanula alpestris (Allioni) and *C. cenisia* are moraine plants pure and simple. The former has enormous flowers for the size of its foliage, and is almost stemless; so also is *C. Raineri vera*. Another gem is *C. Morrettiana* (if you can get it properly rooted) for a tight crevice between moraine stones in half shade. *C. alpina*, like a small *C. barbata*, with a spike of blue blossoms at the side of its rosette; *C. bellidifolia* is good, and other indispensable are *C. Waldsteiniana* and *C. Tommasiniana*. *C. stenocodon*, a tiny hairbell, and *C. acutangula*, a minute *C. gargarica*, should also be considered, and all grow freely in limestone, but *C. alpestris* prefers granite or sandstone.

Convulvulus incanus, with loose silvery foliage, is good, but *nitidus* is compact and better, with foliage of the brightest burnished silver and white or pale pink flowers. At a distance it appears not unlike *Potentilla nitida*, which, however indispensable, is not, to my mind, so fine as the *Convulvulus*. Other suitable *Potentillas* are *P. minima*, *P. Saxifraga*, and *P. calabrica*, the latter with beautiful grey foliage.

Draba imbricata, compact in habit and a hillock of brilliant yellow in spring, is easily first. Other good *Drabas* are *D. dicranoides*, *D. armata*, *D. Bertoloni*, *D. rigida*, *D. bruniaefolia*, all with yellow flowers, and *D. ciliata* with white flowers.

I would confine the *Dianthi* for the moraine to the compact, non-straggling forms, of which the following are good examples:—*Dianthus arenarius*, *D. Freynii*, *D. Lereschei*, *D. gelidus*, *D. subcaulis*, *D. corsicus*, *D. brevicaulis*, *D. virgineus*, *D. hirtus*, *D. alpina*. *D. neglectus* is a gem, but prefers light, open soil.

Douglasia vitaliana has delightful grey-green foliage, and may in the moraine be occasionally induced to give a few of its bright yellow flowers. *D. laevigata* is quite new, with crimson flowers, but seems to prefer light vegetable soil.

Gerbera anandria should not be omitted, and *Geranium sessiliflorum* (white flowers).

Erodium corsieum is dwarf enough to be included, with its charming crimson-lined flowers, and *E. Reichardi* is a miniature gem, but not extraordinarily hardy, and seems to object to a grilling sun.

Edraianthus pumilio is the star of the section whether in leaf or flower. *E. (or Wahlenbergia) vineæflora* has wonderful periwinkle-like flowers, but is much taller. *W. hederacea*, a charming miniature ramper for a moist corner, and *E. (or W.) saxicola*, with erect flowers of pale china mauve. This must not be confounded with the so-called *E. saxicola*, similar in growth, but with washy white flowers, which is in reality, I am told, *E. albo-marginata*.

Helichrysum bellidioides and *H. trinerve* are delightful Everlastings, minute green foliage with white reverse and white flowers, but both are inclined to flop and ramp. *H. frigidum* is choice and rare, but hates damp.

Ranunculus Kern-erianus, with pink flowers flat on the ground, and *R. glacialis* need moisture and full sun. The true *R. crenatus* is delightful.

Plantago nivalis has long narrow leaves covered with wonderful silky hairs, and has inconspicuous flowers.

Hypericum reptans is a gem if you can keep it within bounds, and *H. Coris* is equally desirable; but *H. crenulatum* is the "good girl of the family," with every virtue—habit, constitution, and freedom of flower—and no ascertainable vices.

Pentstemon antirrhinoides is dwarf, with yellow flowers. *P. Davidsoni* is a prostrate gem, needing full sun and a granite and peat moraine to give full measure of its dazzling wine-coloured flowers. *P. Menziesii* is a dowdy country cousin of stronger growth.

Lychnis Lagascae and *variety rosea* must not be omitted, and seem perennial if planted on their side.

Petrocallis pyrenaica, with its cushion of honey-scented mauve flowers and its rare white form, are true moraine plants. Likewise *Saponaria Wiennanniana*, pink flowers, and *S. lutea*, pale yellow.

Silene Elizabethæ needs moisture to flower freely, and *S. Hookeri* is magnificent, but not

perennial with me. *S. acaulis* must be grown for its cushion, it rarely flowers freely here. Grow also *S. laciniata var. Purpurea*.

Stachys corsica is a most delightful plant, very dwarf, covered with white or mauve and white snapdragon-like flowers. It grows freely in sun or shade, but needs full sun to flower freely. Another plant with similar shaped flowers of rosy pink is *Chenorrhium glareosum*.

Helianthemum serpyllifolium is the only member of its family that I would include; and of *Veronicas* *V. bombycina*, with leaves of velvety-silver, and the minute *V. canescens*.

Raoulia glabra is an interesting—not too rampant—carpet, and *R. australis* a gem of the first water, a tiny mat of pure silver.

Townsendia Wilcoxiana and *T. grandiflora*, with dwarf *Chrysanthemum*-like flowers, are choice and slug-beloved.

Onthalodes Lucila does well in limestone or granite. *Santolina alpina* is pretty and quite dwarf, but is inclined to spread.

Sedums have such a habit of seeding that they must be admitted with caution, but *S. cyaneum* is slow-growing, and *S. pilosum* and *S. sempervivoides* should be welcomed. They are both, unfortunately, only annual or biennial here.

I would be inclined to keep *Saxifrages* to themselves, but if they are to be included, I would restrict them to selections from the *Kabschia* section, any of the *Englerias* and a few others (omitting most of the silvers (*Aizoons*), which will grow and spread any where).

I would suggest the following:—*Saxifraga lilacina* (half shade), *S. Grisebachii*, *S. Striburyi*, *S. thessalica*, *S. porophylla*, *S. retusa* (half shade, granite), *S. Aizoon baldensis*, *S. Aizoon venetica*, *S. Aizoon l'agave dauphine*, *S. Ferdinandi Coburgi*, and *S. Paulina*.

Scutellaria indica japonica has mauve Monks-hood flowers.

Viola Comollia is a tiny pansy has port wine coloured flowers, not an easy plant to grow. Another small Heart's-ease with pale lavender flowers I grow as *V. olympica*.

On looking over my article in the June number I find that I stated that the moraines at Lissadell were hand-watered. Sir Jocelyn Gore-Booth informs me that this is not the case, and I take this opportunity to acknowledge my mistake



ANDROSACE SARMENTOSA in moraine at Knapton, Abbeyleix.

The health of the plants, in his moraines, is sufficient proof that their requirements have been satisfied, and that the texture of the moraine is most suitable for the locality.

This list is by no means complete, but space forbids its enlargement. One word in conclusion. When making your moraine, be careful to include the fine *débris* of the crushed stone. I find it is the general practice to riddle the broken stone, and, disregarding the stone dust, to mix only the small-to-large lumps with the sprinkling of soil. The result being either (a) that the moraine "picks" badly, owing to the lumps being too far apart (this allows air to get to the surface of the lower stones, and the plants wither and die or don't flourish), or else (b) one has to add a larger proportion of soil. This makes the moraine "pick" well, but clogs the roots of the plants in winter, and they rot off. If the stone dust be incorporated with the broken stone, very little additional soil need be added, and the plants retain their health.

Hints to Novices.

By MAY CROSBIE.

ONE fact cannot be too often impressed upon gardening beginners, and that is that without thorough cultivation of the soil real success will not result. The more thorough the digging and trenching that is carried out during the winter months, the greater will be the success of next season's crop, be it flower, fruit or vegetable, and the earlier the work is started the better, as the soil is much easier to work before the heavy winter rains and the longer time it has to weather. All ground, as soon as the crop is taken off, should be double dug—that is, broken up two spits or spades deep at least, mixing with the bottom spit, leaves, rotted grass clippings, rotted weeds, road scrapings, and, if available, putting a layer of manure between the two spits. Leave the surface in rough ridges all through the winter, so that a larger surface area will be exposed to frost, snow, &c. When planting or sowing time comes in the spring the soil will be found quite easily worked, fine and friable. The soil ought to be periodically trenched. The main difference between trenching and double digging is that the top and bottom spits of soil change places, the top spit becoming the bottom one and *vice versa*. Old garden ground, poor ground, or ground that is intended for permanent planting, such as fruit bushes, shrubs or a herbaceous border, ought to be trenched at least two feet deep, adding a layer of good manure between the two spits. In cases where the garden has not been well cultivated for years it is often a mistake to trench, as the bottom spit of soil would be too poor to bring to the surface; in such circumstances double dig for a few years before doing any trenching.

At this season another matter of importance for the beginner is the conversion of garden rubbish into fertilizing material, because, as a rule, there is a general tidying up going on now. Garden rubbish includes weeds, clippings of trees and shrubs, leaves, vegetable refuse, prunings, &c., &c. The two main methods of dealing with it are by burning or by storing it to rot. Of the two, personally I prefer burning, because the heat destroys all disease spores and weed seeds, and the resulting ash is invaluable as a manure. But in small gardens the smoke of a fire is objection-

to, and the rubbish may often have to lie about a long time before it is dry enough to burn, and in this case the other method must be resorted to. Open a hole three feet square by three feet deep—this ought to be large enough for the ordinary villa garden of about half an acre, but it is easy to vary the size of the hole—pack the rubbish, and when it is as full as possible cover it over with a light covering of soil. Then open a second hole the same size, and when it is full the stuff in the first ought to be sufficiently rotted to dig into the ground. Leaves ought to be collected by themselves and heaped in a sheltered place; tread them and pack them as compactly as possible, and if dry when collected pour water on them, as this hastens their decay. When they are rotted they form what is known as leaf-mould, one of the most valuable plant foods.

Probably the planting out of spring bedding will be left until this month, as in the past fine month the summer bedding was still very gay. But early in this month all Wallflowers, Forget-me-Nots, Violas, Polyanthus, Auriculas, Bachelors' Buttons, Aubrietia, &c., ought to be in their flowering quarters. Dig and manure the ground well before planting them, and if you have grown on the plants yourself, lift them carefully with good balls of soil.

A common practice in gardens is to cut down all herbaceous plants within a couple of inches of the ground now. This in several ways is a loss—first, the loss of sap to the plant by cutting down the still green stems, which would naturally go down into the root as they withered; and secondly, the brown stems and autumn tinted foliage and the seed heads are most beautiful, and a border in which the plants have been allowed to wither away naturally is a great contrast to one which has nothing to show but bare earth until spring comes round again.

If room is available in a cold frame, make use of it by sowing a few boxes of annual flower seeds, and next year your annuals will be worth looking at. See that the boxes have holes for drainage, and put in the bottom a layer of cinders or broken crocks covered with a layer of moss or fibre before putting in any soil, as good drainage is most essential, as the seedlings will remain in these boxes all the winter. Any old potting soil mixed with leaf-mould and very little old manure makes a good compost. Sow seeds very thinly, water sparingly, and keep the lights off the frame any dry day. Such annuals as Larkspur (rosy scarlet and pale blue), Candytuft (white spiral and carmine), Clarkia (Fire King and Salmon Queen), Lavatera (rose and white mallows) are perhaps the best. Watch the Larkspurs particularly, as slugs are very fond of them.

Campanula Hillside Gem.

FEW of the Bellflowers flower so late or have such an extended flowering season as this. It commences to open its flowers in early July and flowers profusely for many weeks, so that even now—late October—it is still a mass of flowers. The blue cup-shaped flowers are quite two inches across, and being carried in quantity an established plant is very beautiful when in flower. This plant grows only about 18 inches high and forms a nice compact plant with stiff upright stems. Really a gem for the rock garden and sure to become popular with plant lovers, as it will flourish in any good soil.

Tricuspidaria lanceolata.

The Editor's Table.

THIS fine shrub has borne several names, and in gardens is still often called *Crinodendron Hookeri*. Nicholson, in his "Dictionary of Gardening," called it *Tricuspidaria hexapetala*, but in the supplement we read "*Tricuspidaria dependens* is the correct name of *T. hexapetala*." Later on a new white-flowered shrub was found, and investigation proved the newcomer to be properly entitled to the name of *Tricuspidaria dependens*.

T. lanceolata was first collected in Chili in 1782, but it was not until 1881 that it was brought into cultivation. For some time it was very rare and grown as a greenhouse plant; now there are many fine plants growing in the open in South England, Ireland and the

West of Scotland. Probably the finest specimen in cultivation is to be found in Co. Wicklow, at Kilmacuragh, where it has reached a height of 20 feet and about 12 feet through; in Chili it is said to attain the height of 30 feet. For the milder parts of Ireland it is a really beautiful shrub; in the less favoured gardens it may be grown against a wall, or a protected corner should be chosen. If the soil is light or dry, some peat and leaves should be added.

This beautiful shrub is an evergreen, with narrow leaves about 3 inches long; the flowers are blood-red and urn-shaped, about 1½ inches long, and hang from long stalks, wonderfully distinct and unlike any other shrub. The blossoms last for a considerable time on account of their thick texture. A singular feature is the time the flower-buds take to develop; by the end of September they are as large as peas, but it is not until the following May or June that they open. When only 2 or 3 feet high this shrub blooms fairly well, but with age it produces the flowers so freely that at a distance it looks a crimson red.

The newer *Tricuspidaria dependens* was at first very shy flowering, but with age the plants are flowering more freely. The leaves are oval, about 1½ inches long, and the flowers are drooping, white and bell-shaped, prettily fringed at the open mouth.

Both shrubs may be increased by layering or by cuttings taken from half-ripened growths inserted in pots or frames in a compost of sifted sandy peat and loam.

FROM Mr. T. Smith, Daisy Hill, Newry, we have received the following:—

HELIANTHUS SPARSIFOLIUS.—We have often seen this useful autumn-flowering composite before, but never such splendid specimens as those sent by our correspondent. Each flower was fully six inches across, with long petals of a very bright yellow. It grows 7 feet high, and, flowering after Miss Mellish and Miss Willmott, is a particularly valuable plant for the herbaceous border.

ESCALLONIA MONTEVIDENSIS.—In all but the most favoured localities this beautiful late flowering shrub requires the shelter of a wall to protect its flowers

from injury by early frosts. The clear white flowers, over half an inch across, are borne in great profusion in many flowered panicles at the ends of the current year's growth. A shrub far too seldom seen, though there must in many gardens be a warm shelter corner where it would thrive.

CROCOSMIA IMPERIALIS.—In Mr. Smith's opinion this is far better than any of the new varieties of Monbretia which



Photo by]

[Miss S. M. Wallace

TRICUSPIDARIA LANCEOLATA.

have yet been raised. The wide open flowers are of a pleasing shade of orange-red, being quite two and a half inches in diameter.

CRATEGUS LANEYI.—Mr. Smith says: "This is one of the best of the many new North American species of *Cratægus* introduced by Professor Sargent." The dark orange-red fruits are highly ornamental and are carried in nearly erect clusters. This *Cratægus* forms a shrubby tree from 8 to 10 feet in height, with a short trunk, and slender branches forming an open handsome head. The white cup-shaped flowers, about an inch across, are carried in many flowered corymbs; they open early in June, and the fruits ripen early in October. It is found by the banks of the Genesee River, and is named in honour of Calvin Cooke Laney, superintendent of the parks of the city of Rochester, New York.

PYRUS (MALUS) EDULIS.—This is a wonderfully free fruiting crab, with fruits three-quarters of an inch in diameter of a rich golden colour suffused with red as they age.

Fruit Storing and Grading.

THE requirements for the proper storage of apples and pears are not the same. Apples require to be kept in a cool and rather moist place, where there is enough ventilation to prevent saturation. Pears require warm, dry surroundings, but even under the most favourable conditions they will not keep long.

A few days after apples are put in store they begin to "sweat," and continue to do so for about three weeks. During this time there must be a free current of air round them which must not be too dry or they will begin to shrivel. After the "sweating" period is over this is not so important. Small growers who have only a few apples to keep will find that a good method is to wait till "sweating" is over and then pack them as closely as possible in a large earthenware jar. The jar should be covered with a piece of roofing slate or stone and stored in a cool shed or cellar, and the apples will keep plump and good as long as it is possible to keep the variety. For larger growers a shed or storehouse is required if no cool cellar is available, and in preparing a store the following points should be remembered:—

1. The fruit must be protected from frost, but subject to this precaution the temperature should be as low and equable as possible. A cave in a sand or chalk bank makes an excellent storehouse.

2. A moist atmosphere is necessary. The best kind of floor is the bare earth, which may be damped occasionally.

3. Ventilation to prevent stagnant and heated air is necessary, especially during the "sweating" period.

4. Apples easily absorb flavours from their surroundings. They should not be put on new wooden shelves, or on straw or hay, nor should any strong-smelling vegetable or other material be kept in the same room. They should be placed on slate shelves, or old seasoned wood may be used.

A useful apple store may be made by digging a large trench about 10 ft. wide and as long as is required. The depth should be about 2 ft. A wall one brick thick and about 4 ft. high should then be built on either side, and the soil that has been dug out should be heaped up against the outside of the wall. A roof of rough rafters thickly covered with thatch should be built over the top, and shelves can then be fitted inside on which the apples may be heaped. There should be a door at each end so arranged as to admit air and exclude light.

Apples should never be stored in an attic or top room of a house.

GRADING OF APPLES AND PEARS.

If the fruit is to be consumed by the grower there is no advantage in selecting the fruit beyond the fact that it is better to eat the riper specimens first. If the fruit is to be sold it is very important that all the apples or pears offered for sale should be of similar size and quality. The practice of "topping" the consignment with a better class of fruit cannot be too severely condemned.

The following recommendations are offered for the guidance of growers who consign their fruit to market:—

1. Apples and pears should be packed in boxes of uniform size which should contain as far as

possible the same number of fruits. It is more important, however, that the net weight of the consignment should be the same than that the number should be constant. A convenient size for the boxes is 20 in. long, 10 in. deep and 11 in. broad—all inside measurement; these will hold about 40 lb. They can be obtained from box-making firms.

2. The approximate weight should be put on the outside of the box as an indication to the seller of its contents.

3. The name of the consignor, or some mark by which the salesman can identify him, should be put on the box.

Fruit thus consigned should secure a more ready sale than fruit badly and irregularly packed, and will lead to better prices and further orders.

Small growers are strongly advised to satisfy the local demand for fruit before consigning to large markets, as the risk of a glut and consequent unremunerative prices is thereby avoided.—*The Journal of Board of Agriculture.*

Huge Fruits at Record Prices.

AT Covent Garden Market, huge fruits, among other articles, were put up for auction a few days ago, the sale being conducted in the Floral Hall by Mr. Gabriel Barnett, of Messrs. E. Jacobs & Sons, and the proceeds devoted to the Prince of Wales's National Relief Fund. A single apple fetched £55; it was grown by Colonel J. F. Honeyball, and weighed thirty-one ounces. There was also a big pear to keep it company—a choice specimen grown by Mrs. Everett, of Goring-on-Thames, and turning the scale at twenty-two and three-quarter ounces. At Smithfield Market, Manchester, Messrs. Joel & Goodwin sold for £25—which goes to the War Relief Fund—a Lord Derby apple, grown by Mr. G. Glenny, of Wisbech, and weighing twenty-one and a half ounces.

Solanum jasminoides.

THE sight of a strong plant of this charming climber flowering freely against a wall out of doors at Glasnevin reminds us that this plant is much harder than is generally supposed. Most often we see it used for training round pillars or over trellis work in the greenhouse, for which purpose its graceful habit suits it admirably. In the south of Ireland it is perfectly hardy, and even so far north as the Co. Down it is recorded as surviving normal winters without injury, while round the Co. Dublin, especially near the coast, it is frequently met with outside. Except in the milder districts, however, it cannot be relied on to survive a severe winter unless planted in light, well drained soil in a sheltered corner. Wherever it succeeds it makes a most beautiful climber for clambering over a wall or porch: the long slender shoots extend for many yards, draping the wall with a mantle of deep green leaves. Against the dark foliage the pendulous clusters of pure white flowers stand out in striking contrast. It flowers almost throughout the whole summer, but is usually at its best in late autumn.

Camellia reticulata

OF all the beautiful Camellias this is undoubtedly the noblest and finest species, and unfortunately it still remains very rare. It is of Chinese origin, from whence it was introduced in 1820. In the early days horticulture was greatly enriched by the enterprise of explorers, army and naval officers, who from time to time collected plants which were sent to this country, and in regard to the above-named plant we are indebted to the famous East India Company, who were the means of introducing *C. reticulata* to the gardens of the

Royal Horticultural Society. The bright rosy-lake or rich rose flowers, which are furnished with a cluster of golden stamens, are about six inches in diameter, and they are quite distinct from other Camellias. We usually associate a stiff, formal appearance with this flower, but the subject under notice is a brilliant exception, for the blooms are wavy and irregular to a delightful degree. Examples are occasionally seen at the London and other shows. The magnificent specimen grown in the Temperate House at Kew has reached a height of upwards of twenty feet, and some specimens are thriving in the open in Cornwall and in the milder parts of Ireland. Camellias may be planted out in a cool greenhouse or grown in pots, but buyers should try and procure British raised

stock, as Continental plants often sicken and die. This I attribute to the unnatural way in which they are grown. Grafting is the mode of propagation, and to secure a quick return the plants are placed in heat to encourage rapid growth, hence the reaction when brought under normal conditions. During the winter months sufficient heat should be provided to keep out frost and ample ventilation allowed, while they must be carefully watered to prevent the buds falling off. After flowering, the syringe can be used among the plants to encourage growth, and with the arrival of June those in tubs or pots may be removed to the open ground. A sheltered position is advised, such as that provided with rather dwarf Poplar trees or a large Privet hedge. Drip from trees and heavy shade must be avoided. In October they are returned to the greenhouse. When any repotting is needed, it should be carried out in August, using a mixture of peat and fibrous loam, the latter forming the

bulk. At no time ought the plants to become really dry, or much damage will be done. Pruning is seldom required, and then it must not be done severely, just simply keeping them in shape and properly balanced should be the rule.

T. W. B.

Carpenteria californica.

IN *Carpenteria californica* we have one of the most distinct and beautiful of hardy shrubs. When in full flower it is exquisitely beautiful, its pure white flowers somewhat resembling a white *Cistus*.



(CARPENTERIA CALIFORNICA.)

The leaves of the plant are broadly lanceolate, attaining a length of 2 to 3 inches, and are of a greyish-green colour, the under surface being covered with a minute white pubescence.

It belongs to the Saxifrage order, and is a native of California, being introduced some thirty-four years ago.

Its culture offers no serious difficulties, but there seems to be some scepticism regarding its degree of hardiness, although recent experiments conclusively point to its perfect hardiness in England and Ireland, as it has come through several trying winters quite successfully without any protection.

It grows and flowers almost anywhere, but when given the protection of a wall its flowers are produced in greater quantities. Its propagation is effected by cuttings and suckers.

H. C. ELSDON.

Autumn Flowering Laburnum.

THOUGH frequently given under the name of *Laburnum autumnalis* in nurserymen's catalogues, this is really only a variety of the common *Laburnum*, and though there are several other varieties of this well known tree, the above is surely the most remarkable. Its flowers are in colour and appearance quite similar to those of the type, but instead of producing them at the normal time—spring—this form unfolds its flowers in the month of October. At that time most of its leaves have fallen, and the racemes of yellow flowers hanging from the almost leafless branches give the tree a most peculiar appearance. On first seeing the tree in flower at such an unseasonable period most people think the flowering due to the vagaries of the season, but such is not the case, as it flowers regularly at the same time of year.

The Month's Work.

The Flower Garden.

By WM. G. WADGE, Gardener to Lady O'Neill, Shane's Castle, Antrim.

ALTHOUGH there may not be so many things claiming attention during November, yet, if there are alterations to be made and any quantity of shrubs to plant, the time will be fully occupied, even without the constant sweeping and raking called for to keep lawns and walks tidy. The very fine weather during October will have forwarded the preparation of beds for Roses or sites for trees and shrubs. All planting of evergreens should be completed without delay. It is very necessary this year, owing to the limited rainfall, to thoroughly water any shrubs before removal and again after planting. Planting should be done very firmly, and the efficient staking of any specimens large enough to be shaken much by rough winds must be carried out. The foliage of many trees during the past month has been very rich in colouring. If any spot has been noticed in shrubberies or elsewhere that appeared lacking in colour, perhaps owing to excessive use of evergreens, a start may be made forthwith to remedy matters by substituting some deciduous kinds that take on colour at this season.

HERBACEOUS BORDERS.—These may be made or replanted any time when the weather is favourable during the winter, but there are advantages in doing the work early this month. The ground is usually in better order for working than later, and the habit, height and other features of the plants may still be seen. If trenching and replanting is to be done, first see all the plants are securely labelled, then lift them and place thickly together in some convenient corner, covering the roots with soil or ashes to keep them from drying. As the borders are only trenched, at oftenest, once in three or four years the work should be done thoroughly, and a liberal quantity of manure and leaf-mould added. Allow a week or two between trenching and planting for the soil to settle: then, on a dry day, tread the whole surface, afterwards raking it fine. In replanting, use the outside pieces of the clumps: they are best divided by placing two digging forks back to back through the blocks and levering them apart. While it is a good plan to plant in bold groups, they should not be too large, else big bare patches will be seen at certain seasons. For instance, a very large group of *Delphiniums* would leave a blank place in the border for weeks when the season of flowering has passed. The size of the border, and especially the width, must to a certain extent decide the size of the individual groups. In very wide borders some of the choicer shrubs can be used with advantage towards the back.

ROSES.—There is no better time for planting the majority of Roses than November. Teas are best left till late February or March, especially in cold districts. All the plants needed should be got from the nursery now. If the order is deferred, the chances are that some of the popular varieties may be so much picked over that only inferior plants are left. Order early, and heel the plants in carefully on arrival, and plant when conditions are favourable. Roses need a rich, well-drained soil. If making a new

bed or garden, choose, if possible, a spot where water gets away freely, or take steps to drain it. Trench and manure the soil. If it is quite unsuitable for Roses take it out to a depth eighteen inches and fill in with new loam. A good method of planting is to keep a whole bed to one variety, but often one wishes to have more kinds represented than this method allows. Open the holes wide enough to spread the roots out well, and deep enough, so that the point of union with the stock be buried a couple of inches below the surface.

EARLY-FLOWERING CHRYSANTHEMUMS.—Nothing was brighter than the beds of these during October, and they will probably continue flowering well into November. Although the plants are hardy and may be left in the open ground it is advisable to lift them after flowering is finished and place them thickly together in a cold frame. The best results are obtained by propagating annually. The cuttings are more easily secured when under cover, and, the beds being cleared, they can be manured and dug. It is not necessary to keep a large stock, as cuttings are freely produced and easily rooted in spring.

LILY OF THE VALLEY.—These thrive best in partial shade. Beds that have been undisturbed for many years should be lifted, pulled apart, and the crowns graded. Any of them will grow and will flower after a season or two, but the larger ones will flower the following year, or if they are really good they may be potted or boxed, and forced in heat after January. Light rich soil suits Lily of the Valley. Leaf-mould should be worked in when preparing the ground, and a covering of it placed over the bed after planting.

AMARYLLIS BELLADONNA.—This plant is partial to a hot, dry summer. It has flowered freely this October. Planted in good soil at the foot of a south wall it will continue to thrive for many years without attention. Its peculiarity of flowering when leafless gives it a bare appearance where growing.

The Fruit Garden.

By PETER BROCK, Horticultural Instructor for Co. Fermanagh.

THIS is the best month in the year—subject to the soil being in the right condition, *i.e.*, neither too wet nor too dry—to plant all kinds of fruit trees and bushes. There still being a little of the summer's warmth in the ground which assists root action and the callusing or healing of root wounds, the trees get partly established before the rigours of winter set in, and make a better start into growth the first year than trees planted during sloppy weather in mid-winter or late in spring. It is false economy to plant on ill-prepared land, and then try to make amends in years after the trees are planted. Land recently cleared of potatoes or other root crops is generally in good heart and easily brought into suitable condition by deep ploughing, and if necessary deepening the surface by grubbing the bottom of each furrow as the ploughing proceeds. The ridge system of breaking from lea with a crop of potatoes makes an excellent preparation for planting to fruit, the ridges being split after the potatoes are dug affords a deeper tilled surface than is obtainable with ordinary ploughing. Any reasonable expenditure on the preparation of suitably situated and sheltered land of the right

texture, for preference a strong clay-loam sloping to the south-east, south, or south-west by deepening the surface so as to afford drainage, and a storage for moisture, will—provided the subsequent surface cultivation is attended to as it should be—return a higher percentage of profit than most other crops or money in the banks. The importance of situation and shelter have never been better illustrated than during the present year—first, on the 25th of May, the result of avoiding low-lying positions subject to frost, and on the 14th September the effect of shelter from land or other trees. Planters should keep in view the best positions for the different sorts of apples, pears, and plums, having regard to the size of the trees when full grown, assisting cross-fertilization, and that they may as far as possible be self-sheltering without being overcrowded when they attain to full size.

Where the facilities for marketing and other conditions are favourable for growing bush fruits or strawberries between the trees for the first few years, they afford a quick and generally very remunerative returns for the initial expenditure involved in planting. Where sufficient juvenile labour is available to handle the crop, black currants is one of the most profitable under crops for orchards planted principally to Bramley on the crab stock. There is a general tendency to plant Bramley on the crab stock too close together; being a robust grower it requires on medium land at least 24 feet apart each way, and where the conditions are more favourable for growing big trees with Grenadier or Lane's Prince Albert between, for the first ten or twelve years it requires 28 to 30 feet apart each way. Where catch cropping with small fruit cannot be undertaken and profitably dealt with, satisfactory results can be obtained by cropping between the trees with vegetables, potatoes, turnips, or mangolds; the object being to keep the land between the trees under tillage with profitable crops requiring manure as long as possible, so that when the trees are full grown they will be supported by a matted system of fibrous roots near the surface.

STAKING.—For the purpose of accurate spacing and the benefit newly-planted trees derive from being supported against swaying with the wind till they become established, it is advisable that the stakes to which the trees are to be supported should be in position and driven before the planting begins. Such support for the first two or three years, especially in open positions, promotes the development of a better root system from the stem near the surface than when allowed to be swayed by wind, and it also ensures an upright stem on which to develop an evenly balanced tree.

PLANTING.—Trees arriving from a distance in open weather should be immediately unpacked in some shady place. Any shortening of injured roots or strong roots with a downward tendency should be done with a sharp knife or secateur. The pruning of the roots should be done as soon as possible after the trees arrive, as the healing of such wounds begins immediately, and if from any cause the final planting is delayed, it is a great advantage to have this healing process going on. If the roots appear dry the trees may be dipped in a stream or pond, or they may be damped with a rose watering-pot, then heel them in firmly in some fine, damp soil. Packages of trees arriving while the ground is frozen hard

should be placed unopened in some damp cellar or outhouse, and covered with damp litter till the frost goes. In planting all kinds of fruit trees and bushes it is of the utmost importance that they should be planted the correct depth. Open for each a circular hole a little wider than the longest roots can extend to, and spread some fine soil in the bottom of the hole. Place the tree close to the stake, if it requires such, then spread out the roots evenly; work in some fine soil through and over the roots; give the tree a few jerks to pack the heel; add a little more soil, then press or tramp firmly with the foot, and finish by leaving the soil on the surface loose. When planting is completed the tree should be on a slightly raised position, and the earth mark on the stem indicating the depth the tree had previously been planted should be just visible.

WINTER PRUNING.—The wood being sufficiently ripe, the pruning of all kind of fruit trees—figs and peaches excepted, which should be left over till spring—will now demand attention. Early winter pruning of apples, pears, plums, and gooseberries has the great advantage of allowing time for the healing of wounds before severe frost sets in, and increases the strength of the terminal wood bud. Avoid pruning when the wood is in a frozen condition. Pruning for utility under variable conditions and on different subjects presents many knotty problems, but it is, on the whole, the most interesting part of the development of trees for profit. Some justly recognised theories that generally hold good in dealing with trees grown under normal conditions at the root are, when applied to those that have been mismanaged from either overfeeding or starvation, altogether wrong. The best guide to the successful pruning of any kind of fruit tree lies in acquiring the knowledge of how nature can be best assisted to attain a particular object in view—first, in laying the foundation or framework of a well-balanced tree. In the early stages of the tree's growth hard cutting back, according to the habit of the variety, may be necessary to produce the desired number of branches or arms. Secondly, the development and preservation of fruiting spurs on the main branches of such varieties as form spurs on the main arms, by keeping them thinly disposed so that light and air may reach all parts of the tree. Strong-growing sorts like Bramley and Newtown Wonder, which form spurs on the main arms, should have the branches rather thinly disposed. Weak-growing varieties and such as produce the best fruit on the point of the young shoots may have the main branches a little closer. In shortening the leading or main branches on young trees care should always be taken to cut to a wood-bud pointing in the direction the subsequent shoot is desired to grow. Shorten all misplaced or crossing branches to one or two inches from the base to form fruiting spurs. Shorten the leading branches by so much as will ensure the development of sufficient fruiting spurs. Varieties which fruit on the end of young branches—for example, Irish Peach, Lady Sudeley, Baumann's Red Reimette, and the Croftons on the Paradise stock, and, although in a less degree, Worcester Pearmain, Ecklinville and Bismarek—should be freely thinned, and not so severely cut back, except when it is desired to have more or stronger branches produced at a certain point. Remove all sickly or dying branches close to the flow of healthy sap. Where branches have to be removed

with a saw close to the main stem or arm, let them be cut close. Trim the face of all saw-cuts with a sharp knife, and afterwards dress with tar.

RASPBERRIES.—This is a good time to make new plantations. There is no fruit crop which responds more profitably to deep cultivation and liberal applications of farm-yard manure. Raise all suckers which may have been left between fruiting canes to increase stock, and either plant them permanently or in nursery lines. Well matured canes should now be thinned and shortened to various lengths, and either arched or tied to stakes or trellis. Plantations in low-lying or damp positions should not have the canes shortened till all danger of long spells of hard frost is past.

GOOSEBERRIES AND CURRANTS.—Secure strong, well-ripened shoots from 15 to 18 inches in length of sorts that it is desired to increase: tie them in bundles, label, and heel them in in some damp shady place until they can be dressed on some wet day. Gooseberries and red and white currants should have the buds removed from the base of the cutting, leaving five or six buds at the top. Black currants should not be so disbudded, as the bush should be formed of branches rising from the ground and form a clump or stool.

Vegetable Garden.

By ARTHUR HORTON, Gardener to Colonel Claude Cane, St. Wolstan's, Celbridge.

ASPARAGUS.—Early in the month the permanent beds of asparagus will require attention; the foliage by then, being well ripened, should be cut over close to the ground: this is best accomplished with a pair of hedge shears. When all weeds have been removed by hand-weeding a top-dressing of about three inches of half-decayed farmyard manure should be applied; then take sufficient soil out of the alleys to cover the manure; by so doing the beds look tidy, and are not such a temptation to birds as is the case when the manure is left uncovered.

ARTICHOKES.—All decayed foliage and flower stems should now be removed from Globe artichokes, and a good covering of coal ashes placed around the crowns; during severe weather it is advisable to protect the plants with long stable litter, as they are very liable to be damaged by frost. About the end of the month Jerusalem artichokes should be lifted, and the largest and best tubers stored in ashes or sand in the root shed; the medium-sized tubers will be suitable for replanting, and ought to be set aside for that purpose.

BROCCOLI.—The early part of this summer was anything but favourable to the growth of any of the Brassicas, but the past three months has made up to a great extent for failures in the earlier part of the season, as in most gardens winter and spring vegetables are promising exceptionally well, especially broccoli. During severe winters large quantities of this useful vegetable are lost which might be saved if the precaution was taken to heel them over about the end of November. The process is simple, but must be carried out carefully, or more harm than good will be the result. Commence by taking out a trench, a good spading in depth on the north side, and immediately behind the first line of plants, ease up

the roots carefully and lay the plants with the heads to the north, and cover up the stems to the neck with soil taken out of the next trench; if done properly they will come through a very severe winter with little damage.

CABBAGE.—Spring cabbage will be greatly benefited by occasional deep hoeings, or what is even better a good cultivator. All blanks should be made up before the season is too far advanced. About the end of the month it will be an advantage to earth up the plants, thereby leaving them less liable to damage by frost and winds.

FORCING.—In most gardens, large or small, forcing is carried out to a greater or less extent, and the present is the most suitable for making a beginning. Where suitable houses or pits are available a continuous supply of choice vegetables can be kept up with considerably less trouble than in others not so favourably situated; in any case, whether the accommodation is good or not, forcing being unnatural and, of course, out of season, a considerable amount of skill and attention is necessary with some subjects. Asparagus, rhubarb, and seakale are exceptions; all force readily and with little difficulty. The most important factor in successful forcing is to maintain a steady and humid atmosphere, as a high and dry temperature is not only detrimental to most vegetable growth, but a sure way of breeding insect pests.

ASPARAGUS can be forced either in pits or frames placed on hotbeds; the latter way is probably the best. About 3 inches of soil should be put on the top of the bed; place the roots fairly close together, and cover with about 4 inches of soil that has passed through a half-inch sieve; give a good soaking of water to settle the soil about the roots; syringe the beds twice daily in good weather, and keep on a little air day and night.

RHUBARB.—Provided well-ripened crowns are available, few subjects are easier forced than rhubarb. For early work it is best to lift the crowns a week or two before they are required, leaving them on the surface exposed to the weather, thereby hastening the ripening process. A mushroom house, or under the staging of forcing pits or greenhouse, are equally suitable for the first batch, provided the roots are covered with leaf soil or spent mushroom dung, and kept fairly moist.

SEAKALE.—Various methods are practised for forcing seakale, and without doubt the best results are obtained by forcing the permanent beds. But for early work the crowns must be lifted and brought forward inside. When lifting the side roots should be trimmed off and the strongest cut in lengths of about six inches, and stored in sand or fine soil for the winter, where they will form eyes and be ready for planting out the following April. Little difficulty will be found in producing good heads if a suitable temperature can be found, which is about 55°; light and cold air must be excluded.

PEAS AND BROAD BEANS.—The present month is a suitable time for sowing beans and peas outside, and should be made on a warm and sheltered border; if accommodation can be found for raising them in boxes in spring, it is certainly the better and safest plan, as there is no risk of loss by rats, mice, slugs, &c., as is often the case by sowing outside in the autumn.

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Copies of the above Leaflets can be obtained, FREE OF CHARGE and post free, on application to the Secretary, Department of Agriculture and Technical Instruction for Ireland, Upper Merrion Street, Dublin. Letters of Application so addressed need not be stamped.

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The Making and Planting of Rock Gardens.

By L. B. MEREDITH.

(Continued).

It will often be found necessary to make steps in the rock garden; these should be made of fairly heavy slabs, but not of too formal a shape; nor should they be laid with mathematical accuracy, the more uneven the better. Make sure these steps are well bedded and do not move when walked on. Space can be left on the sides and face of the steps for planting; the most suitable species for this purpose are Thymuses, mossy Saxifrages; in fact any plants of a close and compact habit.

The soil of the rock garden is undoubtedly of the greatest importance: let it, if possible, be a light, friable, sandy loam. Should it be deficient in grit or small stones these may be added; broken stones about the size of a walnut may be dug in, as Alpines like to get their roots round stones, which keep them moist and cool.

It will be easily understood that anything in the nature of a heavy or retentive soil is most unsuitable to the culture of rock plants, as in such soils they are very liable to damp off; also the difficulty of effective drainage is considerably increased.

Many plants require special soils, such as peat or lime. These constituents when required can be added. A word of warning in respect of peat-loving plants; they are, as a rule, not so much peat-loving as lime-hating; therefore so long as there is no lime in the soil it will be found such plants as *Lithospermum*, *Ericas*, &c., will grow freely in any good fibrous loam. Where soil has to be added do not stint the amount; make a hole much larger than can reasonably be expected the roots will fill; better to have too much than too little.

But, important as soil may be, I consider climate has even more effect on Alpines. How often has one heard of the untimely death of

treasures from some mountain top in Switzerland, and this despite the greatest care in supplying as far as possible the necessary soil and position. Nor can it be wondered at when one considers for a moment the life history of an Alpine at high altitudes. For many months in the year they are dormant, covered by a deep blanket of snow, which protects them from the extreme cold. When the snow melts they spring into life as if by magic, and into a few short months of almost unnatural vitality is pressed the whole cycle of growing, flowering and seeding. The air is pure and invigorating, and moisture, owing to the melting snow, is ever present at their roots.

Compare this with the climate in this country, the penetrating and ever present damp and uncertainty of an English winter, during which time the plants have no opportunity of going to sleep and thereby nursing their strength. One wonders in the face of these apparently insuperable difficulties, how Alpines can be grown; much, however, can be done artificially. During the winter months, say from November to April, protect with a sheet of glass those plants most liable to suffer from damp, such as *Androsaces* and other woolly-leaved species. These may not add to the appearance of the garden, but they will be found to save many a treasure from an untimely death.

During dry weather in the summer the surface of the ground should never be allowed to get baked; always keep it well stirred and loose. It is rather a popular fallacy to imagine that loosening the ground increases evaporation, for, as a matter of fact, it has quite the reverse effect. When watering is necessary let it be done thoroughly; one good soaking a week is far more beneficial than a light sprinkling daily, which

only tends to draw the roots of the plants to the surface when they should be encouraged to become deep-rooted.

Spring is perhaps the most trying season in England, when there are often long spells of drought, accompanied by cold winds, and it is just at the time of year when it is most essential that vigorous growth should be encouraged, therefore pay special attention to watering in the spring, for when plants are well established they will be better able to withstand the summer's drought, owing to the fact that Alpines are mostly deep-rooted.

Let not the reader imagine, however, that all Alpines require so much attention, for many, and amongst them some of the most attractive, grow freely in any good light friable soil, with sufficient drainage.

Always plant carefully, spreading out the roots; always err on the side of making the hole for the plant too big rather than too small. How often does one see planting done in this manner—a small hole is scooped in the ground and the wretched plant forced into it with all its roots in a bunch. It is also advisable to put some small stones round the neck of the plant, pressing them firmly into the ground: this tends to check evaporation and also keeps the leaves off the damp ground.

The rock garden should be carefully top-dressed each spring to repair the damages done by winter frosts and rains. The most suitable compost for this purpose is good fibrous loam, sand and leaf-mould in equal parts.

Many of the mossy Saxifrages—Sedums, &c.—often show a tendency to die in the centre; should this be the case, soil should be carefully worked into the heart of the plant.

Keep the garden free of weeds at all costs, for if allowed to establish themselves dire will indeed be the result.

As far as possible keep those garden pests—such as snails, slugs or wireworms—in check, or some fine morning when looking for some treasure, remains will only be found, and but few of them.



Green Wood.

SOMETIMES oak, beech, alder, or birch branches are found lying on the ground in woods which appear to have been dyed a verdigris green.

This green wood is used in the south of England and elsewhere in the manufacture of Tunbridge Ware, and is caused by a fungus named *Helotium aeruginosum* or the green *Helotium*. The bright verdigris green colour is attributed to a green pigment of the mycelium of the fungus which spreads through the wood; probably the pigment is a waste product secreted by the fungus.

Plant Names.

By CANON F. C. HAYES, M.A.

THERE are few things more puzzling and discouraging to beginners in their first endeavours to study the science of horticulture than the nomenclature of garden plants; they are inclined to accuse the experts of throwing unnecessary difficulties in the way of ordinary folk by ignoring the vulgar tongue and using instead Greek and Latin terms which only scholars can be expected to understand or even pronounce. One must confess to having considerable sympathy with those who suffer from this grievance.

At first sight the study of plant names is somewhat puzzling and uninteresting. From the nature of the subject it could not well be otherwise, as we shall presently see, but yet it will be found that the puzzle solves itself by degrees and that there are other problems much less easy of solution, even for the experts themselves, which they do not resent because of their mystery.

Plants must have names, and in every part of the world, and in every province at home, they have been assigned familiar local names, which satisfy the people of their district, but many of our plants are the common property of many nations, and our local English names are, of course, useless elsewhere, and so the experts are driven to invent a plant language which may be equally understood by gardeners everywhere.

Let it be admitted that botanical names are often very cumbersome and unpronounceable, yet it must be confessed that other world-wide sciences are no better off. In the study of the earth and the rocks and the living animals, of birds and insects, beginners are faced with what appear outlandish names, and yet people cannot do without them.

But there is this to be said, that, while the names of butterflies and moths give the student of entomology no clue to the nature of the things themselves, there are very few plants whose names do not tell something of the history or meaning of the plant, either the name of the peculiar structure, or its appearance compared with that of its near relatives. It is this which gives the scientific names of plants an interest and a meaning which adds greatly to the other interests of the garden.

As an illustration of the way every name may suggest some peculiarity we may take the Cranesbills. There are three families very nearly related—the *Geranium* and the *Erodium* of our own meadows, and the *Pelargonium* from the Cape. The three names are all pure Greek—

"*geranos*," the Crane; "*erodios*," the Heron; "*pelargos*," the Stork. All three names draw our attention to the long-pointed seed-vessels which remind one of the long sharp bills of the Crane, the Heron and the Stork.

We have got so far as to generic names, but then we find each has been given a specific, the name of the species, which points out how one plant differs from another of the same genus. There is the *Geranium sanguineum* (red flowers), *sylvaticum* (of the woods), *pratense* (of the garden), *maritimum* (of the seashore), *pyrenaicum* (of the Pyrenees), *rotundifolium* (with roundish leaves).

Again, we find some of our plants which have been given an additional specific name added to the generics—*Alpina* (from the Alps), *Japonica* (from Japan), *Sinensis* (from China), *Montana* (from United States in America), or the pine called *Douglasii*, the *Aralia Sieboldi*, *Ampelopsis Veitchii*, named after some well-known discoverer or nurseryman; or to take a somewhat weird example from our own well-known esculent the Potato (*Solanum*), one of these potatoes is found in the Fiji Islands and its botanical name is suggestive of its origin—*Solanum anthropophagum*, for the Fijians were once cannibals and grew this vegetable to be used at their feasts, because they considered human flesh was indigestible unless eaten with such a wholesome vegetable as the *Solanum*.

Some Gardens and Nurseries in England.

By J. W. BESANT.

TOWARDS the end of July I made a journey to London with the object of visiting some notable gardens and nurseries rich in their collections of hardy plants. In the public and private collections visited many plants were noted that are not in commerce, and can often only be obtained by exchange or by the generosity of the owners or responsible authorities.

Kew.

Kew is the Mecca of all gardeners, and in the present-day cult of outdoor gardening few there are who do not find their way thither sooner or later. The collections of Alpines and herbaceous plants have long been noted for their completeness and the excellence of their cultivation, while the tree and shrub collections are famous throughout the world. In the following short notes one can only briefly touch on a few of the more prominent plants noticed in one day. At least a week would be necessary to do the hardy

collections thoroughly. Most of the rock garden plants were not in flower, though there was a good show for the time of year.

Cytisus Kitaibelii is a low-growing broom, like a compact form of *Genista tinctoria*, and eminently suitable for the rockery.

Weldenia candida is a rare white-flowered plant of the Lily order, hailing from Mexico, and by no means of easy cultivation. A deep sandy soil in a warm position is probably necessary. The stock of this is held by Bee's, Ltd., in whose nurseries I had the opportunity of seeing it some eight or nine years ago.

Primula Rusbyi, a new Mexican species, is uncommon, with oblong-toothed leaves and purple flowers.

Saxifraga Kewensis is a hybrid which originated at Kew, and belongs to the popular *busseriana* section. Though not in flower it was attractive in its compact cushions, which in spring are surmounted by pale-pink flowers.

Saxifraga cuscutaeformis is not so rare, but is yet not commonly met with. It is a useful species for a sunny position in sandy soil, given some protection in winter, and spreads by means of runners in the same way as *S. sarmentosa*, which is often grown as a window plant. The flowers are in form somewhat similar to those of the better known *S. Fortunei*.

Primula sapphirina, a tiny species from the Himalaya, was also noted in pots. This is a difficult species which will be hard to retain permanently in cultivation, owing probably to the elevation of its native habitat—viz., 13,000–14,000 feet. Many seedlings of *P. sapphirina* have been raised at Glasnevin, but they never survived any length of time.

In the herbaceous ground *Pentstemon ecrymbosus* was noticeable. It is a dwarf species with bright red flowers, at once distinct and pretty. *P. gentianoides* is very fine, with pale purple-blue flowers of good effect, and would be useful in the herbaceous borders. Many plants are sent out for *P. gentianoides*, but very rarely the right one.

Spharalcea bonariensis, a trailing plant with grey leaves and pink flowers, was attractive, and *S. australis*, with finely cut leaves and orange-red flowers, was very conspicuous. Probably both species would require protection in winter.

Cnicus conspiciuus well merits its specific title, and was the most noticeable plant in the herbaceous ground. The handsome flower-heads, with bright red bracts, encircling a boss of majenta stamens proceeding from the disc flowers, are borne on stems some 3 feet to 4 feet high, and appear very showy from a distance.

The leaves are spiny, and the plant had the appearance of a biennial.

Gentiana Freyniana was very fine, and full of flowers in the rockery, and is a very useful summer flowerer.

Epilobium latifolium is dwarf, with grey leaves, and *Wahlenbergia albo-marginata* appeared attractive.

Alyssum serpyllifolium granatense is a compact form, otherwise much like the type, which is an excellent rock garden plant, with tiny grey leaves and bright yellow flowers.

Codonopsis Meleagris, a quaint Bellwort, with Fritillary-like flowers, was flourishing; and *Anthemis Biebersteiniana* is a choice silvery-leaved plant of more than ordinary merit.

Near the pond by the palm-house there was a very attractive bed of the pink-flowered *Carnation Miss Shiffner*, a variety which is apparently well adapted for bedding.

In the Arboretum there is an enormous collection of new and rare trees and shrubs which would require several days to examine even cursorily. Many, of course, were not in flower, but were, nevertheless, full of interest. *Rhododendrons* have been largely introduced from China during the last decade or so, and the Kew collection, always rich in species, is becoming more so every year. Among others the following were noted:—*R. siderophyllum* in the way of *R. yunnanense*, *R. orbiculare*, *R. Williamsianum*, *R. mucronulatum*, *R. rhombicum*, and *R. halense*, the latter from the Austrian Alps.

Lonicera ovalis was even then in fruit, and looked very pretty with its slender arching branches thickly furnished with pretty red berries. A fine plant of the new *Hydrangea Sargentii* was noted in the temperate house. This species makes very large handsome leaves under suitable conditions, but is not considered

hardy at Kew, and although growing outside at Glasnevin, has not yet experienced much frost.

Pyrus yunnanense and *P. alnifolia*, two new Chinese species, were noted near the temperate house, and near by grows a nice tree of *Sassafras officinale*.

Around the same structure several interesting shrubs are to be found—notably, *Anagris foetida*, with glaucous leaves, and the shrubby

Helichrysum antennaria; *Corema album*, a Portuguese plant of heath-like growth, was noticeable, and also *Sarcobatus Maximiliani*, the North American greasewood. A very handsome oak is *Quercus serrata*, with long lance-shaped, very spiny, leaves, while equally handsome is *Quercus crispula* from Japan. *Scirpus lacustris zebrinus*, green and white, looked well by the Lily pool.

Populus generosa.

A NEW HYBRID POPLAR GROWING IN BOTANIC GARDENS, GLASNEVIN.



POPULUS GENEROSA.

A new hybrid Poplar growing in Botanic Gardens, Glasnevin.

another species, wafted by the wind or carried by insects. Impressed by these facts, I have been making, during the past four years, experiments in the production of new trees by hybridisation in the hope of obtaining fast-growing kinds that would produce timber rapidly.

A full account of these researches will be published shortly as the results are encouraging and

In a paper* which I read at the Linnean Society in April, 1910, I showed that the great vigour of the Huntingdon Elm, Lucombe Oak and Black Italian Poplar is due to the fact that these trees are hybrids of the first generation. Other valuable first-crosses are the London Plane, Common Lime and Cricket-bat Willow. All these fast-growing trees are of accidental origin, the result of seed produced by the fertilisation of the flowers of one species by the pollen of

* *Jour. Linn. Soc. (Bot.)*, XXXIX. 290-300 (1910). See also *Gardeners' Chronicle*, XLVII. 257, 276 (1910).

may perhaps induce enterprising firms to take up similar work on commercial lines. Interesting Ash, Alder and Poplar hybrids have been made. With the Ash hybrids, which are perhaps the most important, considerable patience is required, as the seed "lies over" for a year, and seedlings do not come up till two years after the date of pollination. The Poplar hybrids are more advanced, as seedlings are obtained in the same season that the pollination is effected. One of these, which may be conveniently named *Populus generosa*, has already shown such astounding vigour that it merits immediate description. It is remarkable not only for its rapid growth, but also for its handsome appearance, having beautiful large leaves with conspicuous red veins. It deserves to be propagated as it promises to rival, if not exceed, the remarkable hybrids at Metz, *Populus Eugenei* and *P. robusta*.

The history of the new hybrid Poplar is as follows:—In March, 1912, a pistillate Carolina Poplar (*Populus angulata*) at Kew was crossed with the pollen of *P. trichocarpa*, of which there is a fine specimen, then sixteen years old, in that garden. From the few seeds, which ripened towards the end of June and were sown immediately, there were raised at Cambridge four seedlings. These attained about 2 ins in height by the end of October, 1912. Starting next season as tiny plants in good garden soil at Glasnevin, they grew remarkably in 1913, reached by the end of that year 3 feet 6 inches, 3 feet 1 inch, and 2 feet 11 inches in height, and were very uniform in vigour and in appearance. Two were transplanted last winter, and on that account have been temporarily checked in growth. The two which had not been disturbed thrived amazingly in 1914, one plant continuing to grow till the end of July, when it measured 7 feet 6 inches in height, the other only finishing its growth by the end of September, when 10 feet 1 inch of total height was attained.

The parents of this hybrid are wide apart, belonging to different sections of the genus. *P.*

angulata is a Black Poplar, slow in growth in England, with broad leaves, green on both surfaces, usually cordate at the base, and girt around the margin with a narrow translucent border; petioles laterally compressed; buds slightly viscid, scarcely odorous. *P. trichocarpa* is a fast-growing Balsam Poplar, native of the Pacific Coast of the United States, with viscid buds, giving off a strong balsamic odour; leaves, narrow, very white beneath, without a translucent border, never cordate; petioles cylindrical. *Populus generosa*,* the new hybrid, is intermediate between the parents as regards

the width and colour of the leaves, their under surface being pale grey; but it resembles *P. angulata* in the leaves being coarsely serrate, often cordate, and always surrounded by a translucent border. Their rounded petioles are nearly identical with those of *P. trichocarpa*.

It may be mentioned that some catkins of *P. angulata* (same tree at Kew) pollinated on the same day by the English Black Poplar (*P. nigra betulifolia*) gave another set of seedlings, totally distinct in appearance and remarkable for their want of uniformity of vigour. The two best of these seedlings, though very flourishing, are

considerably inferior to *P. generosa*.—A. HENRY in *The Gardeners' Chronicle*.

* *Populus generosa*, A. Henry hybrida nova inter *P. angulatam*, Aiton, ♀, et *P. trichocarpum*, Torrey et Gray, ♂; foliis mediis, amplis, subtus nec concoloribus nec albis sed incanis, saepe cordatis, semper pellucidis marginatis; petiolis teretibus.



Black Apple.

A PERFECTLY black apple was sent to the Scientific Committee of the Royal Horticultural Society, London, by Mr. J. A. Walker, of Woodberry, Sydenham Hill, S.E. Only once before a black apple was shown before the committee, and Dr. M. C. Cooke attributed its colour to an attack of the fungus *Sclerotinia fructigena*.



Courtesy of]

W. Watson & Sons.

THE TREE, OR PERPETUAL FLOWERING, CARNATION.

The Tree, or Perpetual Flowering, Carnation.

By W. BARRETT, Ballyheigue Castle Gardens,
Co. Kerry.

Of all plants grown in pots, the Tree Carnation, I feel sure, is a general favourite. Unlike most other flowering plants its flowering period extends over the whole year round; hence the name "perpetual flowering"; always at its best in the dull months of winter, and cannot be beaten for decorative purposes (except alone by everybody's favourite, the Sweet Pea). It is a great delight to any lover of plant culture to see a house of well-grown Tree Carnations. They are very easily propagated from cuttings found on the flowering stems, those about 4 inches long taken off with a heel for preference. The best time to propagate is from January till April; cuttings root very readily in a house in a temperature from 65° to 70°; pots or boxes are first-rate to root in. I prefer boxes about 6 inches deep, 2 feet long, and 1 foot wide; in these place a nice layer of clean crocks, with a layer of any rough material on top of the crocks. Fill to within 3 or 4 inches of the top of boxes with a compost of two parts loam, one leaf-soil, and one sand, run through a $\frac{1}{2}$ -inch sieve, press the soil very firmly, and insert the cuttings 2 inches apart each way, make firm, and when finished, give a good watering through a fine rose with tepid water, and place in a temperature as above-named. Cover the box with a sheet of glass, always turning same each morning and evening, to prevent excessive moisture round the cuttings; with this treatment they are generally growing freely in from four to five weeks. At this stage the glass must be dispensed with altogether. Cover with a sheet of light paper, so as to ward off the sun's rays when necessary.

About six weeks from the time the cuttings were inserted will be quite time enough to begin potting. A point to remember at this season of year (January to April) will be to always have pots and soil of about much the same warmth as the temperature of the house. This is best done by leaving pots and soil in the propagating house for a couple of days previous to potting, and also, if possible, potting ought never to be done in a cold shed or house, but always in a warm house. Pots 3 inches (more or less), according to size of plants, are quite large enough to use at this stage; have pots perfectly clean at all potting stages. This is very necessary, as also is good crocking, if one is to have nice healthy plants that are a pleasure to look at. Use the compost advised for cuttings, lift the plants very carefully from the boxes, and pot each plant moderately firm; when finished place the plants in the same temperature for about ten days in a close frame, leaving a chink of air on each day for about ten minutes, to let away excessive moisture. In about ten days or less the plants can be placed on the stage of the house near the glass and the frame taken away altogether. I always like to pinch the centre out of each plant when growing freely at the fourth or fifth joint from the bottom of the plant, as this makes a splendid foundation for a nice bushy stocky plant. It is time now to remove the plants

to a lower temperature of about 55°, and in about a fortnight from time of stopping the plants, pots 5 inches in diameter are none too large to transfer the plants into, provided they are rooting well in the 3-inch pots. The same compost as before advised, only through a $\frac{1}{2}$ -inch sieve, with less leaf-soil and some dry cow manure (also rubbed through a sieve) and a little bone-meal. Pot the plants firmly at this stage, and when finished stand the plants near the glass in a temperature of 50°. A point worth mention at all times is never to pot a plant that is dry, always water such a plant well beforehand. Carnations delight in plenty of fresh air, so on all favourable occasions ventilate the house freely. If one can devote a house entirely to the cultivation of the Carnation so much the better. In about a month from date of last potting each plant ought to be in possession of from four to five nice healthy side shoots. At this stage a neat stake is necessary; tie each growth separately, giving ample room for development. About the end of May or first of June the plants may safely be moved to a cold frame, where they can remain till the first of September. They will need to be shaded from bright sunshine at all times, and a piece of No. 2 scrim or tiffany is first-rate for the purpose, stretched on two poles. Just the size of the frame, this can be rolled on or off when necessary. Never shade the plants more than is necessary, never water the plants unless they really need it, and then water thoroughly; keep a sharp look out for greenfly, redspider, and thrip; these three are the great enemy of the Carnation, not to speak of rust and stem-rot. The latter are mostly due to over-watering and an over moist atmosphere when growing. But despite the grower's most careful attention, fly, spider and thrip will attack his plants.

Spraying with the syringe on hot days in the afternoon is a good preventive measure against the latter, though occasional fumigation must be adhered to. XL All is very good, and this can be easily used in a frame; always see that the foliage is dry before using any fumigant. Attend to stopping the plants, and discontinue same always by the end of July. By the end of June or first week in July the plants ought to be in their flowering pots, and 7-inch is a very nice pot for the plants to flower in the first season. A good compost for the final potting is as follows: Four parts good yellow fibrous loam, one part oak or beech-leaf soil, one part old hotbed manure, and some sand, a little bone-meal, and a slight sprinkle of old soot. Pot very firm, and leave room, about 1½ inches, for top-dressing later, when the plants are flowering freely the latter is very beneficial; potting finished remove to the frame again, with the plants properly and neatly staked. By the first of September the plants ought to be in the house in which they are to flower. See that the house has been thoroughly washed down all over. By the middle or end of October the flower-buds ought to begin to unfold. If the grower requires long stems, with good large blooms, it is necessary to disbud all except the crown buds, those are the first which appear on each flower stem. I have tried taking away the crown bud and leaving three side buds down the stem with great success; the latter open all three together, and are great value for cutting. This is also a good plan if one wants to delay the

flowering for a couple of weeks. Of course the blooms are much smaller in this way.

When the plants are flowering freely, and pots are well filled with roots, a little feeding will be very helpful and will greatly add to colour, size and quantity of blooms. I much prefer using liquid manure in a clear state, as if given otherwise the pores of the soil get closed up and the leaves turn yellow and sickly. Fowl manure and soot are very good, but need to be applied cautiously; other animal manures are equally good by way of changes, such as sheep, cow, and

atmosphere are very essential during the winter months. Always use tepid water in cold weather, about the same temperature as that of the house in which the plants are growing; never have the temperature above 50° to 55° , as by so doing the result will be long weakly flower-stems with inferior blooms. Always aim at having a strong, stocky growth. From now until the month of May the grower ought to have abundance of blooms. If planted out in June of next year the plants will continue to bloom away until cut down by frost.



CYPRIPEDIUM INSIGNE VARIETIES.

horse manure. The best way to prepare same is to soak in a sack for a couple of days in a barrel of water; stir well before using, and, as before advised, rather err on the weak side, by using same in a rather clear state. Doses of pure water must be given between times. Always look over the plants at a time when about to apply liquid manures or artificials, and see that plants that are dry have been watered, otherwise the grower will do more harm than good.

With a little extra care in watering, tying, dis-budding, &c., the grower will have very satisfactory results, which must mean great pleasure to all concerned; careful watering and a dry

Cypripedium insigne.

NOVEMBER and December are the months to see *Cypripedium insigne* and its varieties, for they are now making their finest display. It is one of the easiest Orchids to cultivate, and anyone having a small heated greenhouse in which the atmosphere can be kept moist, and an average temperature of about 50° maintained, will be fully rewarded for the small amount of care which will be required to produce good results.

Cypripediums are the best known examples of terrestrial Orchids, and usually grow satisfactorily

under the following conditions. The plants should be placed on inverted pots, or on a light upper staging composed of lathes, covering the bottom stage with broken coke, fine gravel, or similar moisture-holding material, as the required atmospheric condition is generally produced by the staging being constructed in such a way.

The compost or potting material should consist of loam about three parts, and care should be taken that this is fibrous and light, fibrous peat or *Osmunda* fibre, adding some coarse silver sand or finely broken crocks, mixing well before using.

The most suitable time to pot or surface *Cypripedium* insigne is about one month after flowering, during which time the plants should be kept moderately dry. When potting the compost should be worked carefully through the roots, pressing it firmly with a pointed stick or dibble, leaving a space of one-half to an inch for the watering of the plant.

During bright weather—say from March to September—the plants must be shaded from strong sunshine, giving an occasional spraying or syringing over head in the late afternoon, which will prove beneficial. The amount of ventilation should be regulated according to the outside temperature during mild and moist weather, or when the outside temperature is not too low, plenty of air may be given with advantage.

The following are some of the best varieties:—*Cypripedium insigne* Sanderæ, C. i. Harefield Hall, C. i. Laura Kimball, C. i. Chantinii Lindonii, C. i. George Corser, C. i. Commander-in-Chief.

M. C.

Tiareella cordifolia.

WHEN well grown the "Foam Flower" is a beautiful plant for the rockery over a long season. In May it sends up elegant spikes of creamy-white flowers with chocolate anthers to about 6 inches in height, and during the autumn the pretty heart-shaped foliage often turns to a bronzy tint.

The *Tiareella* succeeds in most soils, but it does not like to be burnt up in summer, so on very dry soils add some peat or leaf-mould to retain the moisture. After flowering, the plant sends out short runners which soon take root, and a healthy colony is soon formed.

Tiareella cordifolia belongs to the Saxifrage order and is a native of North America, the name coming from *tiara*, a Persian diadem, alluding to the shape of the fruits.

Tiareella unifoliata is similar in habit and in flower, but is a larger plant, growing a foot high. *T. trifoliata*, another North American species, is more uncommon, but not quite so pretty, and up to the present has not flowered so freely as the others; it may be easily distinguished by the trifoliate leaves and absence of runners.

The Double Erica Mackaili.

THIS pretty *Erica* may be known to a few people as *E. Crawfordi*, or *Crawford's Heath*, but the plant is simply a double form of *Erica Mackaili*, and it is now being sent out by Messrs. Cunningham & Fraser under the name *E. Mackaili*, fl. pl.

The history of the plant is that it was found by Mr. F. C. Crawford, of Edinburgh (who took the plant to Scotland), at Craigg More, in West Galway, in the year 1891. Since that time it has not been collected, and this specimen was supposed, until recently, to be the only one found.

Some time ago Mr. Praeger tells me that a specimen of this double form has been found among the late A. G. More's specimens of *E. Mackaili*, now in the Herbarium of the Dublin National Museum. These specimens were collected nearly fifty years ago, so that A. G. More, author of "*Cybele Hibernica*," first collected the double *E. Mackaili*, although apparently it was unrecorded, and no special note is attached to the specimen sheet.

The dried specimen seems identical with a growing plant at Glasnevin.

When one knows *E. Mackaili* fl. pl., it is quite easy to imagine how difficult it would be to find when growing wild, for only when bending down to examine it one sees that the flowers are double.

The corolla is urn-shaped, undivided like the type plant, but wider at the mouth, the inside closely packed with petals, and the reproductive organs are absent, so that this doubling does not disfigure the flowers, but enables them to last a longer time in beauty.

For a peaty pocket in the rockery it is an ideal little subject, forming a spreading tuft about 18 inches across and 6 inches high. The blooming period is from the end of August, often prolonged to October. The flowers are pink on the side exposed to the sun, but blush or white when unexposed.

Although now considered to be a species or subspecies, *E. Mackaili* has been known as a variety of *E. tetralix*, while Linton considered it to be a hybrid of *E. cinerea* and *tetralix*. In Galway it has two main stations, and the plants vary in some particulars from these localities—one is around Craigg More Lake, where it extends for a mile east and west, and on Urrisbeg and near Carna.

A pretty photo of Mackay's Heath appears in Praeger's *West of Ireland Flora*, where the plants surrounding it are *Calluna*, *Erica cinerea*, *Sweet Gale*, and *Osmunda*.

F. B.

Gardening for Amateurs.

PART 18 of this most interesting and useful fortnightly publication issued by Cassell & Co. is just to hand. It contains much that should be of value to the amateur, the information being given in a most readable and lucid manner. *Plants for Rooms* is the title of an exhaustive article on this popular form of plant culture which covers not alone those plants suitable for the purpose, but also gives details of culture, propagation, &c. *Hardy Ferns* and *Greenhouse Ferns* have numerous pages devoted to their culture, many splendid illustrations being given of the most useful and beautiful species.

Chapters are devoted to *Hothouse Flowers*, *Climbing Plants* for the Hothouse, *Hedges* and *Hedge Plants*, and other interesting subjects.

Hints to Novices.

WHERE indoor Chrysanthemums are grown, when out of flower they may be cut down to within a few inches of the soil in the pot, and may be then stood on a shelf in the greenhouse, or in a frame. It really matters very little where these old stools are put, provided the structure is frost-proof and admits plenty of light. Strong shoots will break away from the base, and these can be taken off as cuttings. With some varieties there is no lack of cuttings, and they shoot up freely, but others are shy and produce suitable growths very sparingly. The plants should be watered just as carefully as when in flower. If properly attended to in this stage, the cuttings will be strong and healthy and there will be no difficulty in rooting them. Some

of the single varieties are well worth cultivating. They make excellent room plants, they require no disbudding, and are most attractive:—Ivy Sh o e b r i d g e, soft pink; Felix, terra cotta; Mrs. T. Fox, yellow; Ideal, white; F. W. Forbes, crimson; Earlswood Beauty, cream. A batch of these grown merely for cuttings or for the house well repay a little trouble. They are among some of the flowers that last

longest in water, and it is not an exaggeration to say that they will last three weeks. The foliage fades, but the flowers will still hold out.

Bulbs in fibre may be brought to the light. Green shoots will be bursting up through the fibre and the bowls will be much heavier than when first planted, and in many cases the fibre will be raised up in the bowl. This is caused by the formation and growth of the roots. Quantities of roots have been made while the bulbs were in the dark, and these are forcing their way into the fibre and pushing up the bulbs. If the bowls were removed, the fibre and bulbs would remain unbroken surrounded by a thick mass of white roots, that have worked their way round the inside of the bowl, and it is this mass of roots that will support and keep the bulbs firm and steady when they come to the stage of carrying their foliage and flowers.

ROSES.—Where these are grown, and in that part of the country where frosts are severe, the tender varieties should be protected. Ramblers, such as Crimson Rambler, Dorothy Perkins, &c.,

if they have grown too thick, may be removed entirely from whatever structure they are on, and all old, useless wood removed, only replacing the young, strong healthy shoots, on which the following summer's display will come. The arch or wall may look a bit bare at first, but in one season this bareness will hardly be noticed and the trouble will be amply compensated by the wealth of bloom.

Among shrubs in the flower garden there may also be some plants the hardiness of which is doubtful. These should be protected in some way from damp and frost. It is not generally realised that in Ireland a far greater number of plants are killed each winter from damp than from frost. The damp, sodden earth clinging round the base of many choice Alpines and the wet lying on the leaves and getting down into

the heart of the plants soon rots them away. In the case of these Alpines and any small low growing plants, a sheet of glass placed in slots cut in four strong stakes about twelve inches high, and placed slightly sloping over the plant, will keep rain from penetrating the crown of the plant and will keep the soil from getting heavy and clogged. With shrubs and taller plants the common bracken or branches of evergreens placed over



TIARELLA CORDIFOLIA.

the plants will serve as a protection from frost.

All borders should be forked over and left clean and tidy, but where the soil is very light it is useless manuring at this time of the year, as by the time the winter is over all the good of the manure will be washed out of it. It can be done early in the spring.

All leaves should be saved and all garden rubbish, and all carting and wheeling should only be done when the ground is hard frozen.

R. M. P.



Physalis Bunyardi.

THE species of "Winter Cherry" most usually met with in gardens is *Physalis Franchetti*, and less seldom *P. Alkekengi*. Though much the better plant we rarely see *P. Bunyardi*, despite the fact that it is superior in many respects. It is much the strongest grower, reaching in good soil some three feet in height.

The Month's Work.

The Flower Garden.

By WM. G. WADGE, Gardener to Lady O'Neill,
Shane's Castle, Antrim.

To the average man or woman a garden in December is as uninteresting as a desert, but the garden-lover can be interested in his garden and its occupants any month of the twelve. The former will not only desert his garden, but will almost banish it from his thoughts, while the latter will be full of plans for its improvement, and enjoying, in anticipation, next season's display. In winter-work lies the foundation of success the following summer, and nothing can be done in May or June to atone for neglect in trenching and other work that should be attended to now. Regulate the work according to the weather. Take advantage of the ground being hard after frost to carry out any operations calling for carting or wheeling. Any arrears of planting should be finished immediately, if weather and soil are suitable. The heavy rains in November have shown up the wet places in the garden. Any necessary draining should be carried out now. All drains in drives and walks should be examined, and any accumulations of leaves and rubbish cleared away from gratings, that all surface water may get away quickly. Flower beds that have lost their original shape may be taken in hand, and by cutting a piece off in one place and drawing the edge out in another the defects can be remedied. Any hollows in the lawns should be levelled and patches rendered bare by hard wear or the drip of trees should be returfed. In filling up hollows, avoid using too rich soil, or the grass here will grow much stronger than that surrounding, and cause a patchy appearance. A good proportion of finely-sifted coal ashes may be used with advantage. Any flower beds or border not planted for spring effect should be dug or better trenched. Leave the surface quite rough, the birds and the weather will then do their share towards making the soil fertile and free of insect pests.

SHRUBBERIES.—In most large gardens there is a big demand for branches of evergreens at Christmas for decorating various institutions, as well as the mansion. The pruning proper, of shrubs, is best left till spring; but thinning or shortening of large branches may be done now, and the prunings set aside for decorative purposes. The deciduous trees have all cast their leaves. For present appearance and our future peace of mind, those that have fallen or been carried by winds into shrubberies should be raked out and burnt, or placed in a heap to decay. The resulting compost will benefit the shrubs if returned to the soil next season. If any manure can be spared for shrubs, dig it in lightly, using a fork.

VIOLETS.—These have been blooming freely outside, but now the frame plants must supply the demand. They cannot be forced by keeping the lights closed. Ventilation must be afforded freely at all times, except during frosts, when the frames must be covered with mats or other material. Pick off any decaying leaves. If the soil greens over stir it with a hand fork. The

lights should be thoroughly washed, so that the maximum of light and sunshine may reach the plants.

PROTECTING PLANTS.—Many plants are now grown in the open or on walls that are not strictly hardy in this climate, and some means must be taken to protect them during inclement weather. Dry bracken is one of the best materials for Tea Roses and other dwarf-growing plants that require protection for a few inches above the ground. Branches of Yew or Fir are very suitable for placing over shrubs on walls. If long branches are used and secured to the wall by a few ties, it is an easy matter to remove them during spells of mild weather. In no case put on protecting material until hard weather comes, and take it off as far as practicable when frost is absent. Some plants suffer more from excessive wet than from frost. Coal ashes placed in a mound high in the centre, around the crowns of Delphiniums, Campanulus, Pyrethrums, Lilliums, and the like, will keep the soil somewhat drier, besides acting as a deterrent to slugs. Squares of glass may be fixed over such Alpine plants as dislike moisture lodging in the leaves.

GENERAL WORK.—There is usually time this month to get many odd jobs done that are passed over during the busier months. Tools and tool-houses may be overhauled. Apart from the aspect of tidiness, it gives a good opportunity to take note of the number and condition of the stock. Necessary repairs should be carried out, new tools bought in to make up the required numbers, and the shades whitewashed. Lawn mowers, of course, must not be forgotten: the cutting parts of these should at all times be kept oiled, or rust will play havoc with the steel. All the stakes will have been brought in from the Dahlia quarters and the herbaceous borders. Tie into bundles those worth retaining and burn the remainder. If the loam stack is in the open, get a good supply under cover, also leaf-mould and sand. Labels and pegs may be cut and stored away in an orderly manner. If sharp frosts are continued, do not uncover cold frames every day. Alternate freezing and thawing will do more harm than absence of light, provided the temperature keeps near freezing point. Another reminder sometimes necessary in severe weather is to protect the ends and sides of frames as well as the lights.

The Fruit Garden.

By PETER BROCK, Horticultural Instructor
for Co. Fermanagh.

THIS is generally a dull month, and the order of work will largely depend on the state of the weather and condition of the land for completing planting operations that might have been done last month. Fruit growing, like many other rural industries, is feeling the effect of so many of the nation's manhood having answered Lord Kitchener's call to hang up their spade and take up the rifle in defence of the Empire. It is the duty of those who are left behind to make every effort to keep in good order the work so well begun by those who have gone to the front. Digging, trenching, or ploughing, preparatory to planting in spring, should be attended to on all

favourable occasions when the land is in a fit state, so that it may benefit by the action of frost and be in a more friable state when required. Avoid handling or in anyway trampling land when it is too wet, especially if it is of a heavy or retentive nature, as it may take years to undo the harm that may in this way be done in a very short time.

MULCHING.—Trees or bushes which may have cropped heavily during the past season and require assistance to maintain them in full vigour should get a liberal mulching with well-rotted farm-yard manure this month, so that the winter's rain may carry the necessary nourishment to the roots. The manure should, if possible, be wheeled or carted to a convenient position when there is a crust of frost on the ground. In applying such mulching, first remove about 2 or 3 inches of the surface soil as far as the roots extend, then spread the manure neatly and throw the soil back over the manure. Where gooseberry sawfly had been troublesome during the past season, the soil removed from under such bushes will contain the cocoons that would produce another attack in the coming season, and should be buried deeply some distance back and replaced with fresh soil. The covering of the manure with soil maintains a neat appearance, prevents loss of manure from evaporation and affords a good surface for hoeing the following summer. If, however, any trees should show a lack of vigour after recent surface mulching, as may have been indicated by the past season's growth and early shedding of the leaves, application of freshly slacked lime would be likely to prove beneficial. If neither lime nor slag has been applied during the past three or four years, it may be applied this month at the rate of about 15 lbs. to 20 square yards. It may be dusted on the surface and left to wash in with the winter's rain. Full grown trees derive great benefit from occasional good soakings with manure water, such as the drainage from byres, stables or manure heaps when applied during winter.

CORDON ESPALIER AND WALL TREES.—These will now have cast their leaves and may be pruned and tied. Overcrowding of the spurs is a common error in the management of such trees, and is as detrimental to them as overcrowding of the branches of bush trees. No hard and fast rule can be applied to suit all kinds of spurred trees. A safe guide is to study the habit and condition of each tree, and shorten or remove any excess of spurs, so as to prevent overcrowding and keep them uniformly short. Dead or dying stumps or snags, which are liable to harbour insects or fungoid diseases, should be cut back to healthy wood, so that the flow of sap may more quickly callus and heal such wounds that will cover with bark.

NAILING WALL TREES.—In mild weather, when the ground is dry enough to tramp on (or if too wet boards may be used to stand on), cherries, plums, pears and choice kinds of apples may now be pruned and nailed. In pruning young trees—plum: especially—keep the branches thinly disposed, and maintain as far as possible an equal balance of growth between the base and the extremities of the tree. Cherries and plums when neglected in summer pinching may have developed some very gross watery shoots, which should be removed entirely, leaving those that are well ripened and coming from the upper or lower side

of the main branches. Shoots coming directly outward should be shortened to about 1½ inches to form spurs. Branches to be laid in and nailed with shreds should be shortened from a quarter to about one-third of their entire length—for example, a branch 2 feet long should be shortened to about 16 inches. Observe in tying in vigorous young shoots to allow room enough in the shred or tying to take in another branch as thick as the one laid in, so that there will be ample room for the swelling of the shoot in the next year's growth. Horizontal trained apples and pears should have the centre leader shortened to leave from 12 to 14 inches young wood with the terminal bud directed outwards, the next two buds below will be in the right position to form the next tier of branches. The leaders on the branches should be shortened to from a quarter to one-third of the past season's growth, the object of shortening being to get the branches evenly covered with spurs. Peaches and figs should not be pruned or nailed until they show signs of starting into growth in spring.

THE FRUIT STORE.—Keep a sharp look out for any signs of decaying fruit and promptly remove it. There is nothing more detrimental to the keeping of good apples than letting the atmosphere in which they are stored become contaminated with the germs of decay. Do not merely throw decaying apples outside the door or on to the manure heap, either burn them, bury them, or if not too far decayed give them to pigs. Let nothing ever enter a fruit store that would give off an odour that would taint the fruit. Preserve a uniform cool temperature, free from draught, and the atmosphere sufficiently close to prevent shrivelling of the fruit. On wet days select Bramleys may be packed for the Christmas markets. No. 1 and No. 2 grades, being longer keepers, can be disposed of later on. Prices are not so tempting at this date as we have experienced in more peaceful times. Still I have seen quotations that work out at nearly £10 per ton, and a properly cultivated orchard yielding 6 tons per statute acre, from trees not yet nine years planted.

AMERICAN BLIGHT OR WOOLLY APHIS.—This pest is yearly becoming less, thanks to effective washes and efficient spraying. Lime-sulphur at winter strength seems to make a clean sweep of all it can reach.

CANKER.—All canker wounds should be carefully scraped and cleaned with a sharp knife and anointed with coal tar. This will check the disease from girdling the branch, and will also prevent the spores from further accumulating and spreading the disease. It is for the same reason, advisable to burn all such scrapings and prunings from cankered branches.

WINTER SPRAYING.—No opportunity should be missed when calm, dry weather permits thorough spraying to get this important work done or partly done, as it is seldom we get days calm enough during winter to get trees thoroughly coated. There are now many winter washes on the market, all more or less effective for the purpose of keeping the bark in a clean and healthy condition. Lime-sulphur is becoming very popular, due to the results obtained during the past two years, both as a winter wash and as a summer spray in conjunction with arsenate of lead for apple and pear scab. For winter use one gallon lime-sulphur to 20 gallons water keep the bark in a clean and healthy condition. For

trees heavily coated with lichens it may be used at a strength one gallon to fifteen gallons water. Copper sprayers should not be used for lime-sulphur before being thoroughly coated inside with stiff grease, such as cart grease, and washed out with clean water immediately spraying is finished for the day. The Virex-brass alloy "Holder" Knapsack Sprayer is not affected by lime-sulphur.

The Vegetable Garden.

By ARTHUR HORTON, Gardener to Colonel Claude Cane, St. Wolstan's, Celbridge.

DURING the short dark days of December the vegetable grower must be constantly on the alert, and push forward all seasonable work so that he may be in a position to commence the new year with a clear conscience and a clean slate.

The gardener who has his work well in hand at the beginning of the season has a distinct advantage over those who are behind by being in a position to carry out everything at the proper time, which is one of the most important points in successful gardening.

In most establishments leaves are plentiful, and if clean are of great value for various purposes. Where long stable litter is used for hotbeds or for forcing rhubarb and seakale in the permanent beds, the temperature will be steadier and more prolonged if a good proportion of leaves is well mixed through the litter, and turned two or three times at intervals of about a week before it is required.

At Christmas and New Year, vegetables are generally in great demand, and any out of season dish is much appreciated. Fresh batches, therefore, of asparagus, rhubarb and seakale should be brought forward as advised in last month's notes, to keep up the supply. The forcing of seakale in the permanent beds may be commenced any time during this month. All decayed leaves should be removed and a good heap of ashes placed over the crowns and covered with pots made for the purpose. If these are not available barrels or boxes will do as well. Then around and over them place the fermenting material, it being most essential to exclude light and cold air. As a rule seakale forced in this manner forms stronger heads, and is of much better flavour than when grown inside in a higher and drier temperature.

If too many broccoli turn in at one time and are not needed for present requirements, they

should be lifted with a fork and damp moss tied round the roots and suspended head downwards in a cool, dark shed, where they will remain in good condition for a fortnight.

To prevent further decay all dead leaves should be taken off Brussels sprouts and all winter greens. Plants of cauliflowers required for spring planting pricked out in cold frames will need careful attention; water only when really necessary; air must be kept on night and day, and during fine weather the lights should be removed altogether. If the soil becomes covered with green "moss," which often occurs in some soils, it will be an advantage to give it an occasional stir up between the plants with a pointed stick, and apply a good dusting of fresh slacked lime.

During severe weather celery will require some protection. If this precaution is not taken a large percentage will be lost by decaying at the heart. Straw, hay or bracken are all suitable for the purpose, but must be removed during fine weather.

TRENCHING.—The method and value of trenching is well known to practical gardeners, but to the amateur or those who have not practised it a few words on the subject will not be out of place. The proper time for carrying out this particular work is a very debatable subject with some gardeners. Personally I think too much stress is often brought to bear on this point. Unless the ground is badly drained or exceptionally wet, the earlier it is done in the autumn the better, as the weather is generally more favourable, and what is of more importance, other work is not so pressing. My experience is that if neglected during the early part of the year the chances are against it being done at all. In commencing to trench a piece of ground begin at the lower end by taking out an opening about three feet in width, and to the depth intended to trench. The opening taken out must be wheeled to the opposite end, where it is intended to finish. The depth must be determined by the nature of the ground, about two feet six inches to three feet is a good average.

Two sticks and a line should be used to mark out each width as the work proceeds. The top spading of the second will naturally be placed in the bottom of the opening taken out, thus reversing the original position of the soil, by bringing the bottom to the top. There should be no attempt made to break up the soil finely, the action of the weather during the winter months will do this effectually.

If the bottom spading is considered not good enough to bring to the surface, if dug and mixed with leaf-mould, garden refuse or rough manure, it will in course of time render it of a better description than before to a much greater depth.

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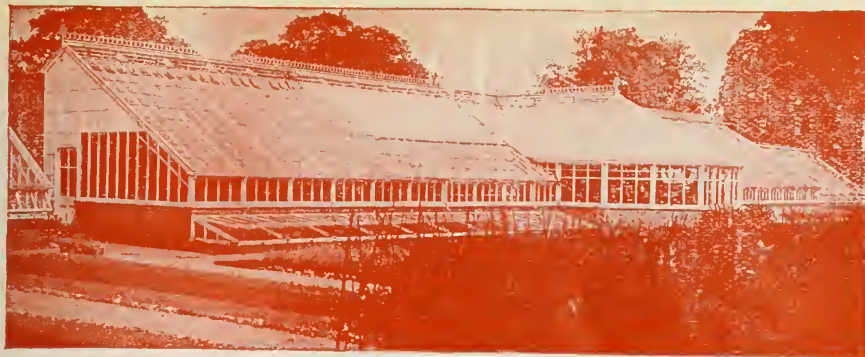
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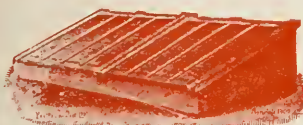
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Note.

READERS of IRISH GARDENING will be interested to learn that the Editor, Mr. C. F. Ball, has answered Earl Kitchener's call for men, and has joined the "D" Company of the Royal Dublin Fusiliers at the Curragh. They will wish him success and a safe return to his duties. Mr. J. W. Besant has undertaken the duties of Editor during his absence. Readers will greatly oblige and help by sending in notes and any interesting information concerning plants and gardens, addressed to the Editor, IRISH GARDENING, 53 Upper Sackville Street, Dublin.

Correspondence.

Still in Flower.

AT time of writing (mid-November) I observe the dwarf Polyantha Rose "Jessie" still a blaze of colour in the nursery lines. Its trusses of bright scarlet-crimson flowers have been borne continuously all over the plants since June, and at no time did its effect fail. The flowers may be said to be more than shower-proof, as the heaviest down-pour seems to produce little or no effect.

In many gardens this dwarf Rose and its fellows, such as the pink "Orleans" and "Phyllis," are superseding Geraniums for bedding. They are

undoubtedly far less trouble, flowering for a much longer period, and they last for years, thereby saving all the labour and expense associated with the annual planting, lifting and housing of Geraniums. As a ground work under tall weeping standard Wichuriana Roses the dwarf Polyanthas are highly effective, the colours of the standards being arranged either to harmonise or contrast with the dwarf Roses below. Several new varieties, such as "Rodhatte," "Maman Turbat," "Papa Hemeray," &c., will be very popular as they become more widely known. I find the whole set of new varieties most interesting.

Clontarf.

J. M. W.

The Extraordinary Autumn of 1914.

I REMEMBER an old friend saying to me in the wonderful summer of 1887: "Make a note of this summer, my boy, for though you may live for many years, you may never see another to equal this." My old friend has gone, and I wonder what he would have thought of the autumn of 1914. It is certainly one to be noted, as it seems hardly possible that so wonderful and so late a season will be experienced again for very many years. Looking back I see in gardening notes of past years that the autumn frost, which kills off the Dahlias, rarely comes later than the second week in October. This year, on Sunday, 8th November, I sat out in my rock garden and

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noted all the different species in flower. The list covers 81 closely-written columns in a note-book, and includes every kind of rock plant: Alysium, Arenarias, Dianthus, Hypericum, Saxifraga, Erodium, &c.—111 different kinds in all—some with only a few flowers, others covered with blossom. Surely a wonderful record for 8th November! and this is no mild spot, like Wicklow or the South-west of England. The frost came on Sunday, 15th, and has remained with us ever since—8 to 12 degrees per night (last January we had 22 and 25), and it is difficult to believe that the bare frosted rockery was a week ago ablaze with summer flowers.

MURRAY HORNIBROOK.

Knapton, Abbeyleix.

Catalogues.

THE old established firm of LITTLE AND BALLANTYNE, Carlisle, send their Planters' Guide, containing a comprehensive list of forest trees which they grow in immense quantities. All the best and most popular timber trees are included, as well as many more valuable for ornamental and landscape work. Shrubs suitable for covert planting and decorative work are likewise included in variety, and a useful feature is the inclusion of lists of trees and shrubs for special purposes—viz., trees for avenues, shrubs for towns and seaside, trees and shrubs for autumn effect, and so on, rendering easy the selection of kinds for any purpose.

FROM WILLIAM FELL & Co., Hexham, comes a well got up catalogue of trees, shrubs, fruits,

roses, &c. Forest trees in all the best kinds are offered in all sizes at fair prices. Trees for avenues, weeping trees and other specimens are included, while the collection of ornamental Conifers is well worth attention. The collection of ornamental trees, shrubs and climbing plants is considerable, and includes many good things. Roses occupy much space in their different sections, and are freely described. Fruits, large and small, are offered in tempting variety, while forcing plants, culinary roots and sundries conclude an interesting and useful catalogue.

MESSRS. W. DRUMMOND & SONS, LTD., send us their autumn and Spring Catalogue, which is, as usual, replete with a select list of plants for both seasons. Fruit trees and bushes are represented in all the best kinds, likewise Roses, Flowering Shrubs, Climbers, &c. Herbaceous and Alpine plants are offered in considerable numbers, also Conifers and Forest Trees. Plants for hedges, stove and greenhouse all go to show the comprehensive nature of this well illustrated catalogue.

Reviews.

Gardening for Amateurs.*

THE nineteenth part of this work is now to hand, and is as usual of a high order of merit. A feature is the large number of excellent illustrations from photographs. The number is largely devoted to trees and shrubs, of which many typical examples are shown, and much literary matter dealing with cultivation and propagation accompanies each subject. On the whole the selections are comprehensive, including the best of the older species and varieties and many quite new kinds.

Rhododendrons receive much attention, and

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deservedly so, also Conifers and other evergreens. Pruning of trees and shrubs is dealt with at some length, and should prove instructive to amateurs, while certain trees and shrubs are described with special reference to their ornamental fruits.

The exact plan followed in compiling the lists of species is not quite apparent, for, while in the new genus *Dipelta* we find mention of species hardly yet in commerce, the shrubby *Potentillas* are represented only by the old species *P. fruticosa* and a mere reference to *P. salesoviana*, while newer kinds, fast becoming popular, such as *P. Veitchii*, *P. vilmoriniana*, *P. Friedrichseni*, &c., are omitted. On the whole, however, it is a good number, and should be in the hands of all amateurs interested in shrubs.

The Journal of the Board of Agriculture.*

THE November issue of the Journal of the Board of Agriculture contains much of value to Horticulturists. The opening article, consisting of notes from Mr. A. D. Hall's paper on the Reclamation of Waste Land, should be carefully studied by gardeners who are specially qualified to deal with such land. If land such as Mr. Hall describes could be bought cheaply, then we feel sure many gardeners would not hesitate to

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embark on market gardening. Harvesting and storing vegetables forms another article obtainable as Leaflet No. 15, and excellent suggestions are given for the destruction of the Pear Leaf Blister Mite. Green manuring, Soda and Potash for American Gooseberry Mildew and the preparation of Lime, Sulphur Solution, are among other subjects of interest to gardeners.

Mountain Ash Berries as Food.

The berries of the Mountain Ash (*Pyrus Aucuparia*) are consumed with avidity by birds and poultry, but they are not often eaten by human beings owing to their bitter taste and peculiar flavour, which has been compared to the smell conveyed by green or recently cut wood. In Wales and the Scottish Highlands they seem to be liked, and have even been exposed for sale in the streets of Glasgow.

This well-known fruit is popularly supposed to be poisonous. It contains a large quantity of malic acid, and some prussic acid, but the latter is in small proportion and is probably not sufficient to render the berries deleterious unless to children.

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In various parts of the north of Europe these berries are dried and ground into flour and used in times of scarcity. When distilled the berries yield a strong spirit, and in Wales a beer or ale was formerly brewed from them.

The chief use of the berries seems to be for the preparation of a jelly, which serves as a substitute for red-currant jelly for game. It has an astringent flavour, however sweetened, but is said to be by far the best jelly for use with venison. The recipe for the jelly given by one authority is as follows:—Boil the berries in water (cold at first) till reduced to such a consistence that the fluid can be strained through a canvas bag; to every quart of the fluid add 2 lb. of loaf-sugar, then boil again for ten minutes. The following recipe is in use in Scotland:—Put the ripe berries in the preserving pan with just enough water to keep them from burning (about $\frac{1}{2}$ pint to 2 lb. of berries) and let simmer. Stir and break the berries up to make the juice flow freely. When the berries are quite soft and well broken up, turn them into a jelly-bag and drain as usual, but slowly and without handling. Return the juice to the pan with 1 lb. sugar to each pint of juice. Boil for nearly an hour, or till it "jellies."

The fruits of the variety rossica are sweet, and the variety is said to be planted in Southern Russia, where, at Kiev, the berries, powdered with sugar and packed in small boxes, are sold and exported.

The variety moravica has larger fruits than the type, and these are less harsh to the taste. They are said to be used extensively in some Continental countries.—*Journal of the Board of Agriculture.*

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BRIDGE MILLS, KNARESBOROUGH, YORKS.



Dublin Wholesale Markets.

LARGE supplies of garden produce of every description has been characteristic of the markets during the past month. Fruit, consisting chiefly of apples and pears, was very plentiful. Prices show very little alteration since last month, with the exception of some barrels of apples of first rate quality coming from Carrick-on-Suir district, which stimulated buyers to increase the bidding over the usual standard. Cox's Orange, Blenheim Orange, Bismarck, Peasgood's, Lord Derby and Brandy are the principal varieties offered for sale which return most profitable prices. Pears, too, when handsome boxes or small lots of selected were offered, received a good share of attention, and consequently prices for these ranged well above the average. Doyenne du Comice, Fertility, and Marie Louise were the favourite varieties of this section. Foreign and Cross-channel stuff was well in evidence, and sold exceedingly well.

Vegetables were extremely plentiful, and occasionally clearances were difficult to effect. Cabbages, both York and Savoy, were overabundant, consequently prices continue to show reductions even from last month. Cauliflowers of good quality are also plentiful, and are selling at prices which are not by any means unprofitable. Celery is improving in quality, but increased quantities tend to keep the prices normal. Artichokes made their appearance early in the month, and are now selling in quantity at the usual rates. White Turnips are largely supplied, and lettuce has improved somewhat in price. All other vegetables show little alteration in prices from last month.

In the flower section Chrysanthemums are as usual extremely abundant, and good blooms and bunches are giving very poor returns. Violets are now coming in rather plentiful, and returns are considerably reduced. Arum Lilies are now offered for sale, and command profitable prices per dozen blooms.

The following is a price list for the month :—

		FRUIT.		From		To	
				s.	d.	s.	d.
Apples—(Select)	per barrel	.	6	0	10	0	
.. (Seconds)	per barrel	.	1	0	7	0	
.. "	per float	.	0	10	2	0	
.. (Select)	per dozen	.	1	6	2	3	
.. (Seconds)	per dozen	.	0	9	1	3	
Pears	per half bushel	.	3	0	3	6	
.. (Select)	per dozen	.	2	0	3	6	
.. (Seconds)	per dozen	.	0	9	1	3	
Melons	each	.	2	0	2	9	
Grapes	per lb.	.	0	8	1	2	

VEGETABLES.

Cabbages (York)	per load	.	3	0	9	0	
.. "	per dozen	.	0	2	0	1	
.. (Savoy)	per load	.	2	0	1	6	
Cauliflowers	per flasket	.	2	0	3	9	
.. "	per dozen	.	0	8	1	5	
Celery	per bunch	.	1	0	2	0	
B. Sprouts	per float	.	0	6	1	0	
Kale	per doz. bunches	.	1	0	3	0	
Parsnips	per doz. bunches	.	0	6	0	9	
Carrots	per doz. bunches	.	0	5	0	8	
Turnips	per bunch	.	0	2	0	1	
Artichokes	per float	.	0	8	1	9	
Lettuce	per dozen	.	0	2	0	1	
Onions	per float	.	1	0	1	6	
Marrows	per dozen	.	1	0	1	6	
Leeks	per bunch	.	0	2	0	1	
Beet	per bunch	.	0	2	0	1	
Parsley	per float	.	0	1	0	8	
Swedes	per cwt.	.	0	9	1	2	
Tomatoes	per lb.	.	0	2	0	1	
Thyme	per doz. bunches	.	2	0	3	6	

FLOWERS.

Chrysanthemums	per doz. blooms	.	0	9	1	3	
.. "	per doz. bunches	.	1	0	2	0	
Violets	per doz. bunches	.	0	1	1	2	
Arum Lilies	per doz. blooms	.	2	0	2	6	
Carnations	per doz. bunches	.	1	0	2	0	

J. J. K.

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Secretary.

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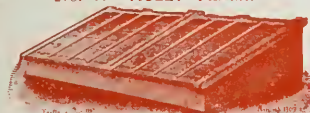
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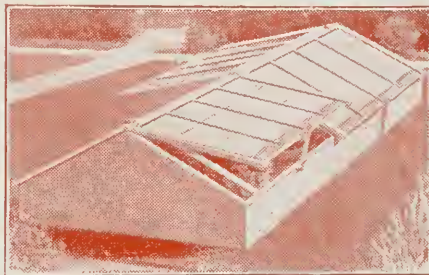
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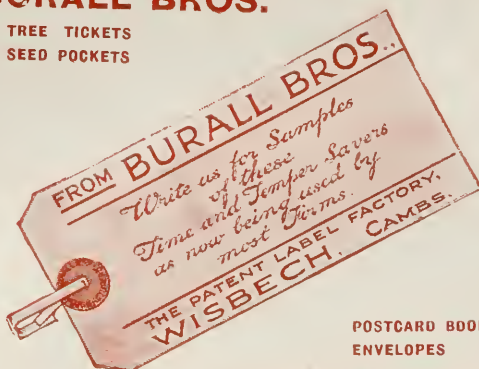
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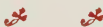
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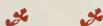
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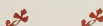


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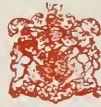


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TO THE EDITOR OF IRISH GARDENING.

SIR,—When renewing my subscription to your Journal it occurred to me that I might tell you something about a new potato I have grown for the last two years, and which I think would be a very valuable late garden or field crop variety to grow in any part of Ireland, but more especially in the wetter parts. The variety is named "Wilson's Templar," and was raised from a cross with a wild type by Dr. J. H. Wilson, F.R.S.E., of St. Andrew's University. It is a white-skinned variety, with the vigour and disease-resisting qualities of the "Champion," and also the late keeping and fine eating qualities of that old sort, is inclined to kidney shape, with scarcely perceptible eyes. I know the difficulties of potato growing in the West of Ireland and the importance of the crop to the small holder, and think this variety well worth a trial. The stock is in the hands of a capable farmer in this district, and should you consider this information of sufficient interest to place before your readers I shall be very pleased to let you have all the information I can about it.—I am, sir, yours faithfully,

W. M. MACDONALD.

The Gardens, Mount Melville,
St. Andrews, Fife.

Catalogues.

FEBRUARY and March are the months for starting Begonia tubers into growth, and some useful cultural directions will be found in the catalogue of Messrs. Blackmore & Langdon, Twerton Hill, Bath. Their successes at leading shows are

numerous as usual, and testimonials show the satisfaction of their customers. Some coloured illustrations give an idea of the gorgeous colouring of the Tuberous Begonia, although scarcely doing justice to the soft rich colours of the flowers. There are new Doubles for 1914, also frilled and crested kinds, and others for bedding, &c. Carnations, both Perpetual and Border varieties, are grown, and a good list of Delphiniums containing many choice varieties.

MACKEY'S Garden Seed Manual, 1914, is a reliable guide to the best vegetables and flowers which can be grown in Irish gardens. The catalogue is well illustrated, alphabetically arranged, and carefully compiled. Cultural directions are clearly given, and should be of value to many novices and gardeners. The vegetable list is a very good and full one, seed potatoes coming in for a lengthy notice. The herb garden is not forgotten, and the proper treatment of lawns is given. Then follows a long list of flowers, including some good novelties: in fact whether one searches for old favourites or new fancies the manual will be a boon, and a help to knowledge of the garden.

MESSRS. DRUMMOND'S SEED CATALOGUE FOR 1914 upholds the high standard of former issues, and deals with all kinds of flowers and vegetables. The illustrations are excellent and the type is clear and bold. Besides goodly lists of all the popular kinds of garden produce, there are interesting novelties in vegetables, and we note a lilac-coloured form of the Sweet Alyssum, the Mikado Eschscholtzia, Wedgwood, and the fine King White Sweet Pea. As usual the firm offers

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of all the finest FLOWER
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DELPHINIUMS, Lily of the Valley,
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Etta Dyke, white	Sunproof King, crimson
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Mrs. Hardcastle Sykes	Elsie Herbert, white and
blush.	pink.
John Ingman, carmine-rose.	Flora Norton Spencer, blue.

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12 beautiful varieties :—

Dorothy Eckford, white	Queen Alexandra, scarlet
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King Edward Spencer, crimson.	Evelyn Hemus, cream and pink
Asta Ohn, rosy-lavender	Gladys Unwin, pink
Tennant Spencer, mauve	Marjorie Willis, rose



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Agricola. Lovely blush suffused rosy lilac. *Per packet, 6d.*

Barbara. A beautiful salmon-orange self, prettily waved; a grand flower. *Per packet, 1s.*

Dobbie's Cream. Deep cream or primrose; fine large flower, probably the best of its colour. *Per packet, 6d. and 1s.*

Decorator. Beautiful soft cherry-red shaded salmon. *Per packet, 6d.*

Earl Spencer. Beautiful salmon-orange, waved. *Per packet, 3d., 6d. and 1s.*

Edrom Beauty. Lovely large orange-pink flower; an improved Helen Lewis. *Per packet, 6d. and 1s.*

Illuminator (Novelty, 1914). Salmon-orange suffused rich cerise-pink; under artificial light a glowing orange-scarlet. *Per packet (12 seeds), 6d.*

King Edward Spencer. Crimson-scarlet, waved. *Per packet, 3d. and 6d.*

King White (Novelty, 1914). The finest white yet introduced; immense waved pure white flowers, four to a stem usually. *Per packet, 6d. and 1s.*

Maud Holmes. A splendid crimson, waved; a first-class flower. *Per packet, 3d. and 6d.*

Melba. Beautifully waved salmon flower, slightly paler than Earl Spencer. *Per packet, 1s.*

Rosabelle. Glowing rose; a fine large and well-waved flower, larger than Marjorie Willis. *Per packet, 3d., 6d. and 1s.*

R. F. Felton. Lilac, shaded french-grey, a remarkably strong grower (seed scarce). *Per packet, 1s.*

Scarlet Emperor. One of the largest and brightest of the scarlets; of the true Spencer type. An extra strong grower; sunproof. *Per packet, 6d.*

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True Lavender (Dobbie). A waved Lady Grisel Hamilton. *Per packet, 6d. and 1s.*

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MANUAL
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prizes for flowers and vegetables grown from their seeds.

MESSRS. WELLS & Co., Merstham, Surrey, send a supplementary List of Novelties to their Chrysanthemum list. Their autumn successes include two gold medals of the National Chrysanthemum Society and many others at provincial towns, with a large number of certificates for new varieties. Their "Daily Mail" Chrysanthemum won the first prize at Edinburgh for the best novelty, while the novelty prize and first prize in scarlets at the Perpetual Flowering Carnation Show were awarded to "Champion."

MESSRS. WM. POWER & Co. send a 1911 Catalogue of Seeds. The "Powerful" seeds from Waterford have a reputation of over fifty years to sustain, and the firm claims that better saved or choicer flower, vegetable and farm seeds are not to be bought, despite the fact that higher priced seeds are easily obtained. The catalogue is a handsome one, well got up and profusely illustrated; it is alphabetically arranged, and so easy of reference. There are very good lists of all the various kinds of vegetables with cultural directions, followed by lawn seeds and a calendar of garden operations. The flower seed list seems to lengthen year by year, and a very choice

selection is offered both for the greenhouse and the garden. Farm seeds and garden sundries are to be found towards the end.

A CATALOGUE OF GARDEN SEEDS, &C., FOR 1911, comes from MESSRS. DICKSON'S, the Royal Seed Warehouses, Chester. At Dickson's, 1911 Exhibition cash prizes are offered for vegetables and sweet peas grown from their seeds, including a £5 prize for a collection of vegetables. The catalogue is large, well illustrated and attractive, containing good selections of all the best vegetables and many of Dickson's new varieties, the latter half being devoted to the many beautiful annuals, perennials, miscellaneous roots and bulbs for spring planting.

GARDEN SEEDS FOR 1911, from MESSRS. LITTLE & BALLANTYNE, Carlisle, is an interesting list, containing some of the best novelties of the year and very complete collections of up-to-date varieties of flower and vegetable seeds, seeds of which are saved from selected stocks. Among the numerous illustrations we note one of a house of L. & B.'s "Profusion" tomato bearing a wonderful crop. This firm is one of the oldest in the trade, having been established over 100 years ago.



A GUARANTEE TO THE GROWER

From the gardener's point of view it is of the utmost importance that he buys only seed which he KNOWS to be right. That fact makes the name of Eckford of the greatest interest for two generations of gardeners—both amateur and professional—have proved by practical experience that whatever seed—he it Sweet Pea or any other floral or vegetable seed—is sold by the famous Sweet Pea Specialist is entirely dependable in every way. This implied guarantee of worth is trebly valuable. It means—**First**—That the seed is of the maximum degree of fertility. **Second**—That the resulting plants will be healthy in growth and habit, and abundantly floriferous in due season. Contrast this **assurance** of the best results, secured by buying Eckford's seeds, with the succession of doubts and failure experienced by the gardener who buys his seed "on faith" from a dealer or from an unverified source. Not only does he risk the cost of the seed, but if the results are disappointing he has, in addition, lost the fruits of the labour and learns, **when it is too late to remedy the defects**, that in matters horticultural there is "everything in a name"—particularly when that name is one rendered famous by merit and dependability all over the world, as is the case with the name of **ECKFORD**.

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HALF-VILLA "B" COLLECTION.

21 Splendid Varieties, suitable for exhibition. 25 seeds of each. 3/6, Post Free, Cash with Order.

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24 Varieties. A splendid range of colour for garden effect and cutting. 50 seeds of each. Price 5/6, Post Free for Cash.

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12 Varieties. The same as Villa "C" exactly, only 52 seeds of each variety. Price 1/6, Post Free for Cash.

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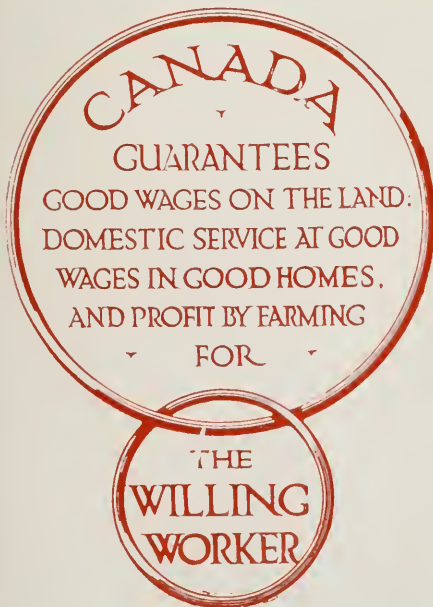
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Dobbie's Cream	Florence Nightingale	Nettie Jenkins
Edrom Beauty	Mrs. Cuthbertson	Nubian
Hercules	Mrs. Hugh Dickson	Red Star
King Manoel	Scarlet Emperor	R. F. Felton
King White	Thomas Stevenson	The Squire
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Dublin Wholesale Markets.

SINCE Christmas the marketing of fruits and vegetables has decreased slightly, but that is not to be wondered at, as there is the usual reaction at this period of the year. However, there is a welcome and varied addition to the vegetable section in the way of forced rhubarb, seakale, and asparagus, and this addition is becoming enhanced every week from the mild and favourable climate of the Channel Isles whence they are transmitted to Covent Garden, and from there consigned to the Dublin Markets. The rhubarb is neatly tied in bundles, each containing three sticks; and packed in large crates for transmission. Small quantities are sent in from home sources, but the great bulk comes from cross-Channel.

The high prices paid for cabbages during the past month have been well maintained up to the present. On the whole, York and Savoys are not by any means up to the standard of last year. The reason of this is not far to seek, nevertheless, they are commanding two and three times the value. Brussels sprouts continue to be the most plentiful vegetable on the market. In fact they have been the outstanding feature in this section, of excellent quality all through, and are commanding quick and distinctly profitable returns, probably due, no doubt, to the scarcity, poor quality and high prices of cabbages. For this reason, too, celery is still holding its own, though the quality is inferior. Broccoli, which should be arriving in abundance, is anything but plentiful, though good prices prevail for high grade stuff. Other vegetables show little change from last month, and prices remain practically unaltered.

In reviewing the fruit section for the past few months we find that home-grown apples are a most profitable asset: but the present supplies are now much diminished, and, therefore, have to give way to the foreign produce. This is greatly to be deplored considering the high prices which are obtained and the huge quantities imported. According to official returns recently issued, no less than two millions sterling was the amount paid for apples imported into the United Kingdom for last year. Thus, large sums of money are expended on an import which could be produced at home, and one which every encouragement is given to Oregon, California and Nova Scotia are the chief sources from whence the great bulk of the supplies of apples to be seen on the market come. In view of all

that it is encouraging to know that home-grown Bramley's Seedling held the premier place right through the season, and eagerly bought up at the top prices.

The flower section gives a good indication of the near approach of spring as is apparent by the quantities of Narcissi, Tulips and Roman Hyacinth, which now beautify the markets. Practically all the Tulips and Narcissi come from the South of England and the Scilly Isles through the distributing centre of Covent Garden. There is an exceptionally active demand for them, and prices are distinctly good. Chrysanthemums are now almost finished.

The following is a price list for the month:—

FRUIT.		From	To
		s. d.	s. d.
Apples—			
Bramley's			
Seedling	per barrel (1sts)	24 0	36 0
Mixed	per float	3 6	5 0
American	per barrel	33 0	35 0
GRAPES.			
Alicantes	per lb.	1 6	1 8
Colmars	" "	1 8	2 0
VEGETABLES.			
Asparagus	per bunch	3 6	4 6
Artichokes	per float	1 8	3 0
Cabbage (York)	per large load	18 0	33 0
" (Savoys)	per load	15 0	28 0
Carrots	per doz bunches	1 0	1 4
Celery (White)	per dozen	1 6	2 4
" (Pink)	"	1 0	1 8
Cauliflowers	per flasket	4 0	6 6
Lettuce	per dozen	0 4	0 6
Leeks	per bunch	0 2	0 4
Onions	per bag	11 0	13 0
Parsley	per float	0 6	0 10
Swedes	per cwt	0 11	1 3
White Turnips	per bunch	0 8	1 4
Sprouts	per float	1 6	2 9
Rhubarb	per doz. bunches	1 4	1 8
Seakale	per bunch	2 0	2 6
Beet	" "	0 2	0 3
Parsnips	per doz. bunches	1 0	1 4
Thyme	" " "	0 4	0 6
Mint	" " "	1 0	1 3
FLOWERS.			
Arum Lilies	per dozen	1 6	2 0
Narcissi (Paper			
White)	per doz. bunches	0 8	1 4
Chrysanthemums	per bunch	0 6	1 2

J. D.

WINTER SPRAYING OF FRUIT TREES to remove Lichen, &c.

BERGER'S LIME-SULPHUR WASH
CAUSTIC SODA, 98 per cent.
PEARL ASH, 75/80 "
PURE SOFT SOAP

COPPER SULPHATE, 98%
COOPER'S V I WINTER
SPRAY FLUID . . .
&c., &c.

SPRAYING AND FUMIGATING MATERIALS OF ALL KINDS AT LOWEST CASH PRICE.

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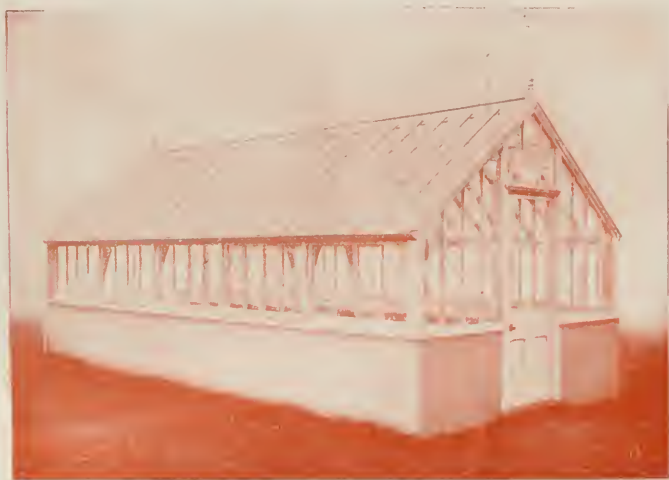
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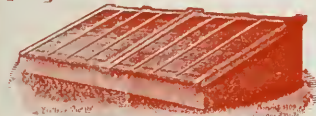
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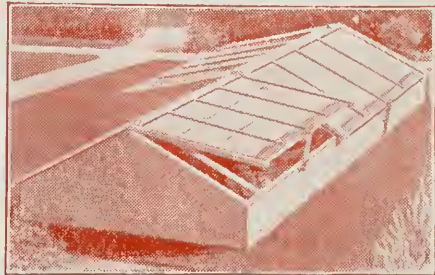
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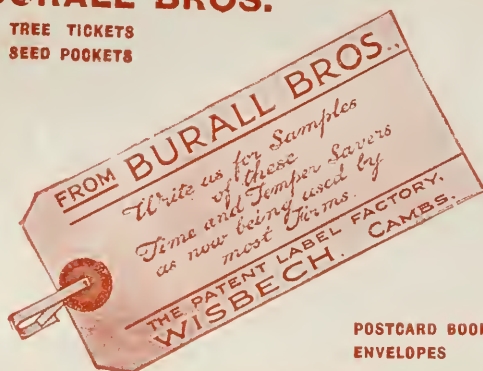
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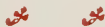
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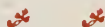
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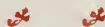


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Forfarshire Seed Potatoes.

The largest **POTATO CROWERS** in the country have their seed from Forfarshire year after year. No change can possibly be better. Send for Free List of all varieties in quantities from 7 lbs. upwards.

May Queen, Duke of York, Ninetyfold, Arran Chief,
and others, 12/6 per cwt.

Sharp's Express, Puritan, Early Rose, and others,
10/6 per cwt.

Eclipse, White Beauty, Sir J. Llewellyn, and others,
8/6 per cwt.

British Queen, King Edward, Golden Wonder, and
others, 6/6 per cwt.

Up-to-Date, Dalhousie, Factor, Dalmeny Beauty, and
others, 5/6 per cwt.

**JAMES MILNE, York Place, MONIFIETH
FORFARSHIRE**

Royal Horticultural Society.

At the monthly meeting of the council held at the offices, 5 Molesworth Street, Dublin, on the 13th ult., further consideration was given to Mr. Usher's suggestions for mitigating the difficulties involved in the judging of hardy flowers. Relative to this, a new bye-law (Bye-law XI., page 33, New Report) has been made, and, further dealing with contingent matter, an addition has now been made by Bye-law XV., which is included on a coloured slip. An addition has also been made to the instructions for judges. Mrs. Sankey, 63 Merrion Square, Dublin, proposed by Lady Moore (Glasnevin), and Mr. E. Turner, Park View Avenue, Harold's Cross, proposed by Mr. W. S. Irving, were elected members of the society. The 81th annual report, with schedules of shows for 1914, has now been sent to all members; others interested in the society's work can have copies post free on application to the secretary, 5 Molesworth Street, Dublin.

Correspondence.

In reply to the question by "Apples" in our last issue Mr. J. Hagan, who has supervised much planting, gives the following estimate for Co. Armagh*:

In reply to yours, *re* estimates, there is practically no planting done here as close as you mention—i.e., 12 ft. by 12 ft.—neither is it advisable unless in very special circumstances. Market varieties suitable for planting in Ireland

* We would be inclined to regard Mr. Hagan's estimate as a minimum; in many districts the cost might work out rather higher, including carriage and more or less unskilled labour. An important point is to have the ground clean and free from bad weeds at planting time.

are fairly strong growers, and would be meeting after eight or ten years, consequently there would be no satisfaction when manuring, spraying, or gathering the fruit. Moreover the trees would be deprived of a free circulation of air and sunlight.

I consider planting 12 ft. by 18 ft. would prove more satisfactory, and grow small fruits or farm crops, such as potatoes, turnips or mangels, between the rows for a number of years. As regards the mixed fruits I recommend, a good deal must be taken into consideration, such as soil, marketing facilities, local demand, &c. Black currants and gooseberries always find a ready market and pay well, but before planting make inquiries from a local expert or grower.

The cost of planting an acre would work out roughly as follows:—

Ploughing ground previously cropped	£	s.	d.
with potatoes or green crop	0	15	0
303 apple trees, 2 years, at 75/- per 100	11	7	3
Marking out ground and planting	1	0	0
	£13	2	3

MIXED FRUIT PLANTATION.

Ploughing ground previously cropped	£	s.	d.
with green crop or potatoes	0	15	0
303 apple trees, 2 years, 75/- per 100	11	7	3
455 black currants, 20/- per 100	4	10	0
455 gooseberries, 30/- per 100	6	15	0
Marking out and planting	2	10	0
	£25	17	3

Gooseberries and currants 6 ft. each way. They commence to pay from the third or fourth year. Apples from the sixth or seventh year.

Yours faithfully,

Roseneath, Armagh,
14th February, 1914.

J. HAGAN.

Perpetual Flowering Carnations

For the Greenhouse or Open Border.

Write at once for full particulars of these glorious plants. :: :: :: :: ::

Special Collections, *in bud*, from 15/- per dozen; will make a grand display. :: ::

One dozen (*extra good*) in 3inch pots, 7/6.

YOUNG & CO. HATHERLEY, CHELTENHAM

Read Taudevin's Cultural Treatise.

Fethard Flower Show

WILL BE HELD AT

LAKEFIELD, FETHARD

(Two Miles from Station)

On THURSDAY, JULY 23rd, 1914

Over 30 Classes open to all Ireland

FOR VEGETABLES, FRUIT AND FLOWERS

£10 Prize offered for Sweet Peas

12 SPRAYS OF 12 NAMED VARIETIES

£3 Prize offered for Carnations

Schedules from Hon. Secs.

Rev. R. C. PATTEN, Fethard Rectory, Co. Tipperary
J. C. O'BRIEN, Lakefield, Fethard, Co. Tipperary

THOMPSON & MORGAN'S FAR-FAMED SEEDS

Revised CATALOGUE for 1914 free on application.

The high quality of our FLOWER SEEDS is now universally recognised, and our CATALOGUE—really a book of reference on hardy flowers—describes nearly 3,000 different kinds, many of them not obtainable elsewhere.

Our VEGETABLE SEEDS are of the finest selected strains, of the best quality, and tested for germination, at prices that defy competition for first-class seeds.

Trial Order Solicited.

THOMPSON & MORGAN, Seed Establishment and Hardy Plant Nurseries, **IPSWICH**

NICOTICIDE

(FUMIGANT)

No. 1 size Tin—2 pt. contains sufficient for	40,000	... 15	0
No. 2 size Tin—1 pint	20,000	... 7	6
No. 3 size Bot.—6 oz.	12,000	... 4	6
No. 4 size Bot.—4 oz.	8,000	... 3	0
No. 4 1/2 size Bot.—2 oz., new size	4,000	... 1	8
No. 5 size Bot.—1 oz., "sample"	2,000	... 0	10

CARRIAGE PAID

Fumigating Lamps

1s. each, for 5,000 cubic feet

Nicoticide Plant Spray

1-pint 1/2 Pint 2/-

Quart 3/6 1-gal. 5/-

Gallon 10/- Carriage Paid

GOW'S LAWN SAND

DAISY ERADICATOR

28 lbs. (to dress 100 square yds.) 6/6,

1-cwt. 11/-, 1 cwt. keg 21/-



Carriage Paid

GOW'S LIQUID WEED KILLER

1 gallon, to make 51 gallons, in solution . . . 3/6

5 " Drums Free " Carriage Paid 16/-

Use Gow's Tobacco Powder and Quassia Extract

6d., 1/- and 2/6, decorated tins.

GOW'S SLUG DESTROYER And Combined

28 lbs. 4/6 1-cwt. 7/6 1 cwt. 11/6

All Carriage Paid Sample Tins, 6d and 1/-
In Decorated Tins.

ASK YOUR SEEDSMEN AND NURSEYMEN FOR IT.

HUNTER & GOW, Ltd. 42 Thomas St. LIVERPOOL

THE CHEAPEST INSECTICIDE OF THE DAY

"NIQUAS"

(NON-POISONOUS)

IMPROVED

A Concentrated Extract of Quassia, combined with other valuable ingredients, forming a cheap, safe, and effective Insecticide for syringing and dipping. It destroys all Insect Pests infesting Trees and Plants, whilst no possible injury to vegetation can result from its use. It can be applied with syringe or pump, or used for dipping.

PRICES—Half-pint, 1/-; pint, 1/6; quart, 2/6; half-gallon, 4/-; gallon, 7/6; five gallons, 25/-; ten gallons, 40/-
1 gallon sufficient for 80 gallons of water.

STANDEN'S MANURE

(Established over 35 Years)

Exceeds all others in General Fertilising Properties and Staying Powers

Analysis on Application

Sold in Tins, 1/-, 2/6, 5/6 each; and in Kegs, well secured, to prevent loss through exposure, 28 lbs., 7/6; 56 lbs., 12/6; 112 lbs., 20/-

CORRY'S SPECIAL

Chrysanthemum Manure

Sold in Tins, 1/-, 2/6, 5/6, and Bags, 1/2 cwt., 10/6; 1 cwt., 18/-;
1 cwt., 32/-

For Fumigating in Greenhouses.

"LETHORION"

Improved Metal Cones

Registered No. 62,597

To destroy Insect Pests. The Candle attached to each Cone only needs lighting, and there is no further trouble. They are most efficacious.

No. 1. For frames and "leant-to's" up to 1,000 cubic feet. Price, 6d. each.

No. 2. For small greenhouses up to 1,500 cubic feet. Price, 8d. each.

No. 3. For a well secured house of 2,000 to 2,500 cubic feet. Price, 1/- each.

Fowler's Lawn Sand

This preparation is for destroying Daisies and other weeds on lawns, and at the same time stimulating the growth of the grass. If one tin is tried as a sample, its value will be at once appreciated. Sales are largely increasing.

Tins, 1/-, 2/6, and 5/- each; Kegs, 1/2 cwt., 8/6; 1 cwt., 16/-;
1 cwt., 30/-

ELLIOTT'S

'Summer Cloud' Shading

Registered Trade Mark No. 14,629.

(The only genuine original and improved article)

For Greenhouses. A pleasant green shade is given to the glass. In packets, 1/- for 100 feet of glass, and 2/6 each for 300 feet.

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SOLD BY ALL NURSEYMEN AND SEEDSMEN

THOMSON'S
MANURES
FOR
VINES PLANTS & VEGETABLES

PERFECT PLANT FOODS.
THE RESULT OF MANY YEARS PRACTICAL
EXPERIENCE IN GARDENING.
USED ALL OVER THE WORLD.
SOLD BY SEEDSMEN & NURSEYMEN
EVERYWHERE.

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Gardeners and Foresters under the Department of Agriculture.

ATTENTION is directed to the announcement in our advertising columns relative to courses of training in Horticulture and Forestry to be held during the year 1914-15 under the Department of Agriculture.

The course in Fruit-growing and General Gardening at the Albert College, Glasnevin, offers to men who have had some years' experience of garden work an excellent opportunity to acquire a thorough knowledge of the subject. Students are allowed 14s. to 16s. per week in addition to furnished lodging while in training. Several gardeners who have taken out this course have been able to secure employment as horticultural instructors under the Department's schemes.

Applicants for apprenticeships in forestry are not expected to have had any special knowledge of forestry, but preference is given to those who have had experience of work in woods. Apprentices are allowed 14s. per week with furnished lodging during the first year of their training.

The Department also offer valuable Scholarships in Horticulture and Forestry tenable at the Royal College of Science, Dublin. The scholarships are renewable for four years to enable the holders to obtain, free of cost, the most advanced technical and scientific training.

Irish Show Fixtures for 1914.

This list is intended to assist societies in selecting dates for their shows by indicating the arrangements which have already been made and preventing the clashing of show dates.

Secretaries will greatly oblige by sending the

earliest possible intimation of their fixtures and of any change which takes place in their arrangements.

April	15	R. H. S. I., Spring Show, Ballsbridge, Sec., E. Knowlton, 5 Molesworth Street, Dublin.
..	16	Co. Clare Horticultural Society, Spring Show, Ennis.
July	10	R. H. S. I., Summer Show, Lord Iveagh's Grounds, Dublin.
..	15	Lucan, Saggart and Clondalkin Show. Hon. Sec., Mrs. R. Shackleton.
..	18	Terenure and District Horticultural Society, Terenure, Dublin. Hon. Sec., A. Phipps, Esq., St. Ann's, Kimmage Road, Dublin.
..	24	Fethard Flower and Industrial Society's Show, Lakefield, Fethard. Hon. Sec., Rev. R. C. Patten.
..	30	Killarney Flower and Industrial Society, Killarney. Hon. Sec., J. Henry, Esq., Danesfort Cottage, Killarney.
..	30	Co. Clare Horticultural Society, Ennis. Summer Show, Ennis. Hon. Sec., H. Bill, Esq., Lifford, Ennis, Co. Clare.
Aug.	13	Co. Galway Horticultural Show, Ballinasloe. Hon. Sec., Miss O'Shaughnessy, Birch Grove, Ballinasloe.
..	15	Naas District Horticultural Society, Naas. Hon. Sec., Dr. O'Donel Browne, Gortnagrena, Naas.
..	25	R. H. S. I., Autumn Show, Lord Iveagh's Grounds, Dublin.
Sept.	3	Kilkenny Horticultural Society, St. James's Park, Kilkenny. Hon. Sec., Miss F. E. Butler, Lavistown House.

DEPARTMENT OF AGRICULTURE AND TECHNICAL INSTRUCTION FOR IRELAND

TRAINING IN—

Agriculture, Forestry, Horticulture
Creamery Management, &c. ::

Persons who desire to attend any of the Courses in the above-mentioned subjects, to be provided by the Department during the year 1914-15, should apply without delay for prospectuses, &c., to

THE SECRETARY, Department of Agriculture and Technical Instruction for Ireland, Upper Merrion St., Dublin



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A SYRINGE?**

When a
**'HOLDER'
PNEUMATIC
SPRAYER**

- (1) Will do ten times the work in a fraction of the time.
- (2) Will do it more completely, more thoroughly, and with no waste of fluid
- (3) Is so simple to use, and will save its cost in a single season.

Prices from 12/6. List C3 from
H. Hartjen & Co., 35/37 Noble Street, London, E.C.

Glorious Begonias

Winners of Gold Medal at International Exhibition, 1912
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AWARDED 36 GOLD MEDALS.

For Exhibition, Greenhouse, and Conservatory
Decoration, Hanging Baskets and Bedding

Double Seed, 2s. 6d. & 5s. Single, 1s., 2s. 6d. & 5s.

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Border Carnations, Perpetual Flowering Carnations, Cyclamen, NOBLE DELPHINIUMS, Lily of the Valley, Blue Primrose, Polyanthus, Violets, &c., &c.

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Mackey's BIJOU COLLECTION

Price 1/6 Post Free

Contains 10 Seeds of each of the following
12 finest varieties :—

Etta Dyke, white	Sunproof King, crimson
Clara Curtis, cream	Masterpiece, lavender
George Stark, scarlet	Mrs. J. C. House, mauve
Countess Spencer, pink	Helen Grosvenor, orange
Mrs. Hardcastle Sykes blush.	Elsie Herbert, white and pink.
John Ingman, carmine- rose.	Flora Norton Spencer, blue.

Mackey's POPULAR COLLECTION

Price 1/9 Post Free

Contains 30 seeds of each of the following
12 beautiful varieties :—

Dorothy Eckford, white	Queen Alexandra, scarlet
Princess Victoria, pink	Lord Nelson, deep blue
Constance Oliver, cream	Helen Lewis, orange
King Edward Spencer, crimson.	Evelyn Hemus, cream and pink
Asta Ohn, rosy-lavender	Gladys Unwin, pink
Tennant Spencer, mauve	Marjorie Willis, rose

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SUTTON'S COLLECTIONS OF VEGETABLE & FLOWER SEEDS

FOR GARDENS OF ALL SIZES



One of these Collections, composed of the finest seed, selected with great care and packed in the right quantity to prevent waste, will certainly meet your requirements for the coming year, and save the worry entailed in selecting the varieties and quantities to suit your Garden



"Parcel Post" Collections of Vegetable
Seeds only,

22 Varieties	5/-;	32 Varieties	7 6
39 "	10 6;	43 "	12 6

"Parcel Post" Collections of Vegetable
and Flower Seeds.

22 vars of Vegetable Seeds & 8 vars of Flower Seeds	7 -
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39 "	18 "
43 "	24 "
	10 -
	14 -
	17 6

"Rail" Collections of Vegetable Seeds
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From 21 - to £10 10s.

Collections of Flower Seeds only.

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CARRIAGE FREE

Full particulars on application . . .

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THE KING'S SEEDSMEN

READING

Catalogues.

A CATALOGUE OF "HAWLMARK" SEEDS comes from Messrs. Alex. Dickson, Ltd., Dublin and Belfast. They announce an addition to their other places, as they have bought a farm at Marks Tey, Essex (the best seed-growing county in the British Isles), for the growth, selection and further development of their special strains of "Hawlmark" seeds. This catalogue is particularly valuable, as the firm test the varieties they grow, and print in bold type those varieties which have proved the best. "Barr's Mammoth" has proved the best and earliest of the asparagus when tested with Conover's Colossal and other varieties, and should be planted in April. There is a very good collection of vegetables and useful cultural notes. The garden pea trials are particularly interesting. The new selection of Pilot has proved the largest podded and best early pea, Royal Salute for the main crop and Rearguard for a late crop.

MESSRS. CANNELL & SONS' Spring Guide for 1914 is a good catalogue, containing excellent collections of vegetable and flower seeds. In the novelty list we notice a double-flowered yellow Snapdragon, said to be the largest of the family, and one called Cardinal, the brightest scarlet. There are new forms of Begonias, Primulas, Sweet Peas, and, among other things, a double-flowered

variety of that beautiful South African Daisy *Dimorphotheca aurantiaca*. At the end of the catalogue are offered Cannell's Zonal Pelargoniums, fruit trees, Violas and Violets. A pamphlet, with a special offer of surplus stock of perennials, ornamental shrubs, roses, &c., is enclosed.

MESSRS. H. HARTJEN & CO., 35 Noble Street, London, send a booklet dealing with "Sprayers." "Holders" were the original Pneumatic Spraying Machines, and received the Diploma and the large Silver Medal at the International Exhibition, besides many other awards at various exhibitions. Pumping and spraying at the same time is fatiguing; with the pneumatic sprayer, pumping is done with the machine on the ground, and once pumped the contents of the sprayer are discharged automatically, so that attention can be given to guiding the lance and directing the spray in a more efficient manner.

MESSRS. THOMPSON & MORGAN, Haslemere Nurseries, Ipswich, send a catalogue of choice seeds for 1914. Although without a single illustration, the pages number over a hundred; not only does it include garden annuals, greenhouse subjects and vegetables, but also hardy perennials and many choice Alpines. Many Alpines and herbaceous plants are readily raised from seeds, and even better than when raised from cuttings; and this catalogue is almost unique in its collec-



A GUARANTEE TO THE GROWER

From the gardener's point of view it is of the utmost importance that he buys only seed which he KNOWS to be right. That fact makes the name of Eckford of the greatest interest for two generations of gardeners—both amateur and professional—have proved by practical experience that whatever seed—be it Sweet Pea or any other floral or vegetable seed—is sold by the famous Sweet Pea Specialist is entirely dependable in every way. This implied guarantee of worth is trebly valuable. It means—**First**—That the seed is of the maximum degree of fertility. **Second**—That the resulting plants will be healthy in growth and habit, and abundantly floriferous in due season. Contrast this assurance of the best results, secured by buying Eckford's seeds, with the succession of doubts and failure experienced by the gardener who buys his seed "on faith" from a dealer or from an unverified source. Not only does he risk the cost of the seed, but if the results are disappointing he has, in addition, lost the fruits of the labour and learns, when it is too late to remedy the defects, that in matters horticultural there is "everything in a name"—particularly when that name is one rendered famous by merit and dependability all over the world, as is the case with the name of **ECKFORD**.

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THE AMATEUR COLLECTION.

50 Splendid Varieties, including all the Novelties for 1914. The number of seeds in this collection varies according to variety. In the majority of cases, other than Novelties, 25 seeds of each will be given. It is rare value, and will provide a wealth of exquisite beauty for cutting. A splendid exhibition collection Price 20/- Post Free for Cash.

EXHIBITOR'S "C" COLLECTION.

25 Splendid Waved Varieties, excellent for any purpose, fine for exhibition. 10 seeds of each. Price 5/6, Post Free for Cash.

HALF-VILLA "B" COLLECTION.

24 Splendid Varieties, suitable for exhibition. 25 seeds of each, 3/-, Post Free, Cash with Order.

EXHIBITOR'S "A" COLLECTION.

40 Splendid Waved Varieties. This collection also includes a half packet of each of the Novelties for 1914. The number of seeds, other than Novelties, will be 20. This is splendid value. Price 15/-, Post Free for Cash.

VILLA "A" COLLECTION.

50 Splendid Varieties, 25 seeds of each, exquisite for garden effect and cutting. All free flowering and strong. A fine range of colour. Price 10/-, Post Free for Cash.

VILLA "C" COLLECTION.

12 Varieties. A splendid range of colour for garden effect and cutting. 50 seeds of each. Price 2/9, Post Free for Cash.

EXHIBITOR'S "B" COLLECTION.

30 Splendid Waved Varieties, excellent for any purpose, fine for exhibition, 20 seeds of each. Price 10/-, Post Free for Cash.

VILLA "B" COLLECTION.

24 Varieties. A splendid range of colour for garden effect and cutting. 50 seeds of each. Price 5/6, Post Free for Cash.

VILLA "D" COLLECTION.

12 Varieties. The same as Villa "C" exactly, only 52 seeds of each variety. Price 1/6, Post Free for Cash.

FREE Send a Postcard to-day for a large Illustrated and Coloured Catalogue. It gives all particulars of the New Sweet Peas for 1914 and contains a full list of all Flower and Vegetable Seeds necessary for your garden.

Henry Eckford, F.R.H.S., Sweet Pea Specialist, Wem, Shropshire (Dept. 88)

SWEET PEAS

Exhibition Sorts. Per packet, 6d. Twelve Sorts for 5/-

Barbara	Elfrida Pearson	Melba
Dobbie's Cream	Florence Nightingale	Nettie Jenkins
Edrom Beauty	Mrs. Cuthbertson	Nubian
Hercules	Mrs. Hugh Dickson	Red Star
King Manoel	Scarlet Emperor	R. F. Felton
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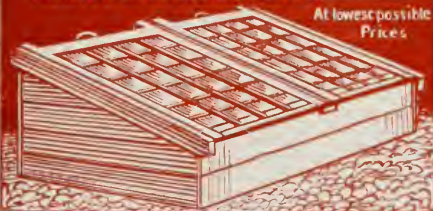
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ALL 21 OZ GLASS THROUGHOUT.

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Prices



THIS TWO-LIGHT FRAME made to standard
size 6 ft. by 4 ft. Best materials, painted two
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PRICE 30/- packed free on Boat.

7,650

Farm Workers & Domestic Servants

WANTED FOR

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All the other Provinces present
similar details of opportunities.

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tions, for there is always something new to be found and many other uncommon plants not elsewhere listed. It is essentially a catalogue for the collector as well as for the ordinary garden lover.

FROM WITH'S CHEMICAL MANURE CO., Hereford, comes a booklet entitled "How to Increase the Fruits of the Earth," by G. H. With, F.C.S. Perfect and fruitful plants are continually taking food from the soil, therefore to retain the fertility of the soil we must supply the constituents which the different kinds of plants require. The chemist has been a real help to the gardener in finding out the particular requirements of certain crops. Now it is possible to buy food for our special favourites, from sweet peas and roses to vines

and tomatoes, &c. With's Plant Food has for many years been recognised as a safe and reliable general manure, producing first rate results. With's Carbon Universal Manure increases the crop, enhances the colour of flowers and the flavour of fruits, and is cheap. With's now cater for the small as well as the large garden, and their Bumper 1/- package, without smell, will be a boon to many a garden lover, containing 7 lbs. potato or fruit manure or 5 lbs. of special manure for Roses, Sweet Peas, Tomatoes or Chrysanthemums, &c.

MESSRS. ERNEST DRAPER & Co., the "All British" Factory, Northampton, supplies quantities of footwear and clothing direct from the factory to the actual wearer. In the list are

23 Years' Reputation for Begonias.

T.T.

GREAT OFFER

1 will send 12 DOUBLE BEGONIA TUBERS, in 6 Colours, sold in my spring test at 8d. each, 6 for 3s. 6d., 12 for 6s. 1 will give 12 in 6 colours, GRATIS, in every 5s. parcel. This offer is for one week from date of paper. T.T. makes this offer to induce trade for a short period only. The Begonias are absolutely free. 1 have put 50,000 of these large bulbs—not cheap ones, but the best 4,000 5s. orders will take all the Begonias. Don't miss it, 24 with 10s.; 48 with £1 orders.

5s. Orders, Carriage paid. Under, 6d. extra.

SPECIALITIES—JAPANESE LILIES, GLADIOLI, BEGONIAS, ROSES, SEEDS.

JAPANESE LILIES.

Hansoni the Chocolate Lily, Each 12.	100		
9/10	1/-	11/6	90/-
Jap. Batemani, apricot yellow	6d.	5/11	47/-
Tiger Japanese Double 6/8	6d.	5/6	42/-
Tigers, singles, largest, 9/10	9d.	8/6	62/-
Speciosum album, white 8/9	6d.	5/11	47/-
Speciosum album, 10/11	1/-	11/-	90/-
Lilium auratum Golden Ray,	9d.	8/11	71/-
10/11	1/-	11/6	82/-
Lilium auratum jap. 12/13	1/-	11/6	82/-
A few picked, 2/- each.			
Lilium speciosum rubrum, 6/8	3d.	3/3	24/-
Lilium spec. rubrum, red and white, 9/10	6d.	5/11	47/-
Brubrum monster bulbs, 12/13	1/-	11/9	90/-
A few monsters, picked, 18/- doz.			
Lilies magnificum, dark red, 6/8	4d.	3/9	30/-
Magnificum, best bulbs 9/10	9d.	8/6	82/-
Lilium auratum vittatum, red banded, 7/9	1/6	15/-	136/-
Lilium platyphyllum, best, 9/10	1/-	11/6	94/-
Lilium auratum platyphyllum, 12/13	1/6	17/6	136/-

GLADIOLI UP-TO-DATE.

My Gladioli are grown by one of the largest growers, and have stood the test for 23 years. This year the selection and mixtures are the best sent out. The prices are now the lowest for 1st quality. Usual price, 5s. dozen. Each 12.

America, soft lavender pink	3d.	2/6
Attraction, deep dark red	3d.	2/6
Brilliant, beautiful orange, carmine red	3d.	2/6
Florida, deep dark red, early	3d.	2/6
Little Blush, dwarf Blush, white	3d.	2/6

Also H. Gillman, Molwags, Mrs. Beecher, Oddity, Marie Lemoine, Breuchleyensis, Columbia, Noel, Baron Hulot (blue), Adolph Jacquet, usual price, 5s. and over per dozen, now offered by me for the first time at 3d. each; 12 for 2s. 6d.. Don't miss them—cannot be replaced.

NAMED ROSES. 6d. each, 12 for 5s.

Marchal Niel, Wm. Allen Richardson, Gloire de Dijon, Caroline Testout, K. A. Victoria, U. Brunner, Hugh Dickson, Frau Karl Druschki, Paul Neyron, Gruss an Teplitz, Viscountess Falkstone, Capt. Christy, &c. 12 for greenhouse, 5s.; or 12 for outside, 5s.

SWEET PEAS.

Collection A.—6 varieties, 1s. 50 seeds each. Frank Bailey, Cisse, Spencer, Nora Unwin, E. J. Castle, St. George, Paradise (New), 50 seeds each. 6 varieties, 1s.

Collection B.—50 seeds each, 9 varieties, 1s. A. J. Cook, Duke of Westminster, King Edward VII., Lady Grisel Hamilton, Lord Nelson, Mrs. Collier, Prince of Wales, Sybil Eckford, Mrs. Alf. Watkins. 50 seeds each, 9 varieties, 1s.

Collection C of up-to-date varieties.—50 seeds each, 12 varieties, 1s. Dainty, Gladys Unwin, H. Eckford, Hon. Mrs. E. Kenyon, J. Cuthbertson, Miss Willmott, Navy Blue, Queen Alexandra, Romolo Pazzani, Salopian, Triumph, Black Michael. 50 seeds each, 12 varieties, 1s.

Spencer and Unwin Peas, mixed, 1s. oz. Large-flowered Sweet Peas, mixed, 6d. oz.

Tropæolum tuberosum rapid climbers, large flowers, 6d. each; 12 for 5s.

TURNER'S SELECTED PEAS.

Daisy, 7d. pint; Gradus, 7d. pint; Duke of Albany 7d. pint; Wm. Hurst, 7d. pint; English Wonder, 6d. pint; Harrison's Glory, 7d. pint; Prince of Wales 6d. pint; Stratagem, 6d. pint; Telephone, 6d. pint; Broad Beans, 1 pint, 4d.; Masterpiece Longpod, 3d. pint; Green Windsor, 4d. pint; Harlington, 4d. pint; Dwarf Bean Negro Longpod, 6d. pint; Champion Runner Bean, 8d. pint; all per pint; 1/- pint, same price. For others see Seed Catalogue.

Collection Seeds same as last year. Buy now new seeds, and take advantage of gratis Begonias.

2/- COLLECTION VEGETABLE AND FLOWER 2/- SEEDS, AMATEUR'S COLLECTION.

1 pint Peas, 1-pint Broad Beans, 1-pint Runner Beans, 1 oz. Onions (Turner's), Parsley, Cress, 1 oz. each. Packet each Exhibition Brussels Sprouts, Cucumber (outdoor), Tomatoes, Radish, Mustard, 1 packet each; 1 packet Asters and Stocks; 6 packets flower seeds. Packet Cauliflower Snowball. This Collection a great success last year. 2s. lot.

GLADIOLI.

Magnificent Collection, 1/6; Double, 2/9

6 Gladioli Childsi, flowers of enormous size; 6 Lemoine's new hardy hybrids, butterfly gladioli; 6 Nanciams, extra large flowers, salmon pink, carmine, mauve, orange scarlet; 6 Graft's American hybrids, dazzling colours; 6 Gandavensis French hybrids, pink throats. Collection. 6 of each, 1s. 6d.; 12 of each, 2s. 9d.; 24 of each, 5s.

LILIES.—Collection No. 1, 5/- Each

Lilium auratum rubra vittatum	1/-
Lilium auratum, golden rayed lily	1/-
Lilium speciosum album, white	1/-
Lilium speciosum rubrum	1/-
Lilium Hansoni, chocolate lily	1/-

This collection of monsters for 5s.

Collection No. 2.

1 Lilium auratum rubra vittatum, sold at 2s. 6d.; 1 Lilium speciosum rubrum, red and white; 1 Lilium longiflorum; white trumpet; 1 Speciosum rubrum; 1 Lilium auratum, golden rayed lily. 5 lilies, 1 of each, for 2s. 6d.

2/6 Collection of Lilies—12.

2 Lilium longiflorum, white trumpets; 2 Speciosum rubrum; 2 Magnificum; 2 Double tiger lilies; 2 others. 2s. 6d. the lot.

1st SIZE GLADIOLI MAMMOTH BULBS.

Brechleyensis, well-known	Each 12	100/-
scarlet	2d.	1/6 12/-
Childsi, American hybrids,		
extra	2d.	1/6 12/-
Gandavensis, French hybrids	2d.	1/6 12/-
Graft's hybrid mixtures	2d.	1/6 12/-
Or 12 in 4 sorts, 1s. 6d.; 100, 12s.		

Cannas (dwarf Crozy's).—Massive flowers for greenhouse or outside. Usual price, 6s. to 9s. a dozen. My price for large rhizomes, 3d. each; 12 for 2s. 6d.

Crozy's Cannas, J. F. Lovatt, wine red	Each 12	3d.	2/6
Gen. Zimmerman, extra large	3d.	2/6	
Lohengrin, large yellow	3d.	2/6	
A. Bouviere, dark red	3d.	2/6	
Crimson Bellder, crimson	3d.	2/6	
Wallace, yellow	3d.	2/6	
King of Yellows, yellow	3d.	2/6	
Ant. Revoire, rosy red	3d.	2/6	
Gorlonbau, yellow	3d.	2/6	

The price is the very lowest for first quality. Usual price, 6s. to 9s. dozen. Offered by me for first time at 3d. each; 12 for 2s. 6d.; 100, 20s. Don't miss these bargains.

Tigridia Mexican Lilies (Tiger-flowers):—

Pavina, tinged, spotted yellow	Each 12	3d.	2/6
Alba grandiflora, white spotted rich lake, most beautiful	3d.	2/6	
Conchiflora, bright yellow, spotted scarlet	3d.	2/6	
Or 12 in 6 sorts, 2s. 6d.			

SALE PRICE OF GLADIOLI.

Childsi, enormous flowers, all colours, 12	100
sale price	4d.
Lemoine's new hybrids, hardy Butterfly Gladioli, splendid	4d.
Nanciams, beautiful class of hybrids, large individual flowers	4d.
Graft's American Hybrid Gladioli, flowers rich, dazzling colours very fine mixed	4d.
Gandavensis, choice mixed seedlings, and Pink Throats, all colours, mixed	4d.

Gladioli Baron Hulot, the famous blue Gladioli, extra each, 3d.; 12, 2s. 6d.

Double Begonia, Camellia flower, 1st quality, 5d. each; 6, in 6 sorts, 3s. 6d.; 12, 6s.

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Possess improvements embodied
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HORSE AND PONY MACHINES, the best
large Machines.

Motor Mowers, Lawn Sweepers, Garden Rollers, Edge
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Pest Destroyer. Safe, Sure, and Reliable kill for
ALL Garden Pests :: :: ::

½ pint, 1-; pint, 16; quart, 26; ½ gall., 4-; gall., 76

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Specially Recommended by the **NATIONAL ROSE SOCIETY**

The most Economical and Efficient Hand Sprayers

Vary Spray from fine to medium or coarse ::

Highest Award at K.H.S. Trials :: ::

No 4 (1 x 14). 86; No 5 (1 x 20). 106; No. 6 (1½ x 20). 146.

Bends not included but charged 16 extra

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"ABOL" WORM KILLER

The most EFFICACIOUS destroyer of earth-worms
on Golf Greens, Tennis Courts, Garden
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bined efforts of three generations of specialists. They ought to be
AND ARE the best which can be produced.

ALEX. DICKSON & SONS, LIMITED

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serviceable boots for market gardeners, head gardeners and under gardeners from 9s. 9d. upwards. There is a special gardeners' list, which is free on application, containing leggings, overalls and many useful garments at very reasonable prices.

A CATALOGUE OF PERPETUAL FLOWERING CARNATIONS comes from C. ENGELMANN, Saffron Walden, Essex. Wheresoever Carnations are grown the name of Engelmann is well known as a leading raiser of seedlings and a most successful exhibitor at the leading shows. The good qualities of "Carola," one of the finest crimson, are generally recognised, and now a coloured illustration shows a bright scarlet sport named "Scarlet Carola," which looks a handsome, bold flower. Other novelties figured and raised at Saffron Walden are Albino, Circe and Pioneer. The general list of varieties is a very lengthy one, some illustrations show the large and light houses used for Carnation growing, also Engelmann's branch establishment at St. Laurent-du-Var, near Nice, where about 100,000 plants are grown.

Dublin Wholesale Markets.

WITH the genial return of spring the variety of fruit, flowers and vegetables is steadily increasing, and this augmentation is met by a brisk and ready demand on all sides.

Owing to the greater variety of vegetables to choose from there is not such an active demand for cabbages as heretofore, consequently prices show a tendency to drop, but this downward tendency is not to any appreciable extent, and in all probability cabbages will be scarce and comparatively dear until the late spring and summer months, when the supplies will be expected to come in in quantity and quality. Jerusalem artichokes are selling well, so are asparagus, seakale and broccoli. In this section green peas and beans from Guernsey are to be seen on the market.

Irish apples of the variety Bramley's Seedling in barrels and two and three dozen boxes are still arriving in limited quantities, chiefly from Armagh, and change hands at profitable prices. Apples from overseas in both boxes and barrels are plentiful. The variety of fruits on sale is supplemented by the arrival from the Cape of plums, pears, nectarines and peaches.

Large consignments of cut flowers mainly from Covent Garden are being received every week: the bulk consists of Narcissi, Daffodils of the variety Golden Spur, Emperor and Empress, single and double Tulips, Snowdrops, Freesias, Arum Lilies,

Lily-of-the-Valley, Acacia (Mimosa), Carnations and Violets, &c. All were cleared at exceptionally good prices. There was a lively demand for flowering plants. Cinerarias, Genistas, Azaleas, Hyacinths and White Spirea, &c., are the leading features just now. Of foliage subjects—Smilax, Asparagus plumosus, A. Sprengeri and nicely coloured twigs of Mahonia are welcome and do not lack buyers.

The following is a price list for the month:—

FRUIT.		From		To	
Apples—		s.	d.	s.	d.
Bramley's					
Seedling	per barrel (2nds)	18	0	21	0
"	per dozen	1	6	2	0
American	per barrel	26	0	32	0
Grapes (Colmar's)	per lb.	2	3	2	6
Peaches	per case	3	6	4	0
Plums	per case (of 35-40)	3	6	4	0

VEGETABLES.

Artichokes	per float	1	0	2	0
Asparagus	per bunch	3	0	4	0
Cabbage (York)	per large load	20	0	29	0
"	per load	14	0	20	0
" (Savoys)	per large load	15	0	23	0
Carrots	per doz. bunches	1	2	1	6
Celery (White)	per doz. (large)	2	0	3	0
" (Pink)	per dozen	0	10	1	6
Cauliflowers	per flasket (31)	2	6	4	0
Lettuce	per dozen	0	4	0	6
Leeks	per bunch	0	2	0	4
Onions	per bag	10	0	12	0
Scallions	per bunch	0	4	0	6
Swedes	per cwt.	0	11	1	1
White Turnips	per bunch	0	9	1	6
Sprouts	per float	1	3	2	0
Rhubarb	per doz. bunches	1	0	1	6
Seakale	per bunch	2	0	2	4
Parsnips	per doz. bunches	1	4	1	6

FLOWERS.

Arum Lilies	per dozen	1	6	2	6
Asparagus plumosus	per doz. sprays	1	0	1	4
Acacia (Mimosa)	per large crate	3	0	—	—
Freesias	per doz. bunches	3	0	3	6
Carnations	per dozen	1	6	2	0
Hyacinths (Roman)	per doz. bunches	3	0	4	0
Daffodils (double)	per 3 dozen bunches	2	0	3	3
Violets	per doz. bunches	0	8	1	6

WINTER SPRAYING OF FRUIT TREES to remove Lichen, &c.

BERGER'S LIME-SULPHUR WASH
CAUSTIC SODA, 98 per cent.
PEARL ASH, 75/80
PURE SOFT SOAP

COPPER SULPHATE, 98%
COOPER'S V I WINTER
SPRAY FLUID
&c., &c.

SPRAYING AND FUMIGATING MATERIALS OF ALL KINDS AT LOWEST CASH PRICE.

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XL ALL NICOTINE VAPORISING COMPOUND, the gardener's favourite fumigant, both Liquid and cake.
XL ALL NICOTINE INSECTICIDE WASH for Syringing, Dipping, and Dressing Fruit Trees and Plants. Mealy Bug, Scale, &c., cannot exist where this is used.

XL ALL INSECTICIDE WASH B (*sine* Nicotine), best non-poisonous Wash on the market.

Other Preparations of great Renown are **XL ALL GRUB KILLER** for digging in when the soil is fallow. **RICHARD'S WORM KILLER**, for lawns, both non-poisonous.

Don't forget to ask your Nurseryman or Seedsman for my small pink list.

G. H. RICHARDS, Manufacturer,
 234 Borough High Street, London, S.E.

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DESIGNING, Laying out and Planting of New and Renovating of Old Gardens. The Making and Planting of Rock Gardens, Rockeries, Water and Bog Gardens, and Pergolas a Speciality.

Plans Prepared. Estimates Free.

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 SPECIAL POTS of all descriptions. Bulk Bowls and Ferns. Plans sent 2d. each.
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Rose Trainers, Umbrellas, Trellis for Walls and Lawns, Seats, Arbours, Tubs, Arches . . . Silver Medal International Exhibition, 1912. Illustrated List on application.

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IF YOU HAVE A GLASS ROOF THAT LEAKS, a Conservatory to repair, or any kind of glazing work to be done, **CARSON'S PLASTINE** will save money, time, worry and annoyance consequent on the use of ordinary putty, which cracks, crumbles, and decays. It saves the expense of constant renewals. Carson's Wood Preservative in green and brown, for Palings, Trellis Work, &c. The best paint for Greenhouses is "Vitrolite." Write for Catalogue. **CARSON'S, 22 Bachelor's Walk, Dublin.**

AUTO-SHREDS IS CERTAIN DEATH to Leaf-mining Maggots, Mealy Bug and all Pests infesting plants under glass, &c. Simple to use, no apparatus required. In Boxes to fumigate 1,000 cubic feet, 6d.; 10,000 cubic feet, 3s. 6d. each. Obtained of Seedsman and Florists; if unobtainable apply direct—

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Wholesale Horticultural Sundriesmen,
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KELWAY COLOUR BORDERS are now being planned and planted. Write your requirements to Langport, and Borders of any kind can be arranged for immediate delivery at all prices. State area, &c.

TESTIMONIALS.

—, Esq., Excelsior, Minn., U.S.A. "I enclose a photograph of one corner of my 'Kelway' Garden showing some Onopordion Bracteatum in the foreground and Delphiniums and Paeonies in background."

From —, Esq., Malvern Road, Weston-Super-Mare, 9th October, 1913.—The Kelway Border which you supplied to me in November, 1911, has given every satisfaction. I changed my residence in March last, and brought the greater part of the Border Plants with me. I had no time to prepare the ground for them, and as the soil here is of a very dry and sandy nature, I was prepared to lose a good many of the plants. To my agreeable surprise, however, only one plant died. The rest have grown vigorously, and nearly all have borne plenty of bloom, notwithstanding the exceptionally dry summer we have had.

This, I think, speaks for the vitality of the plants sent out by your firm.

"Kelway's Manual of Horticulture," 2s. 6d.; Gardens of Delight, 9d.; returnable to customers.

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LANGPORT, SOMERSET

NOW is the time to plant Kelway's lovely Gladioli. Never before have Kelway's, the champion growers of this lovely autumn-flowering bulb, been able to offer such a wide collection of beautiful varieties. They have made a speciality of the cultivation of the Gladioli for over 50 years, and their experience has enabled them to produce combination of size, form, and brilliant colouring which cannot be duplicated. For decoration of all kinds the Gladioli is pre-eminent. Offer of collection of named sorts—Collection 3, 45s. per 100; Collection 6, 12s. per dozen. Carriage and packing free for remittance with order.

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KELWAY'S LOVELY DELPHINIUMS.

They grow to a height of from four to eight feet or more, and bear bold and brilliant masses of fine shapely blooms in all shades of blue and purple. They thrive with a minimum of attention in almost any soil and climate. Kelway's Delphiniums should be planted by everyone who owns a garden.

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LANGPORT, SOMERSET.

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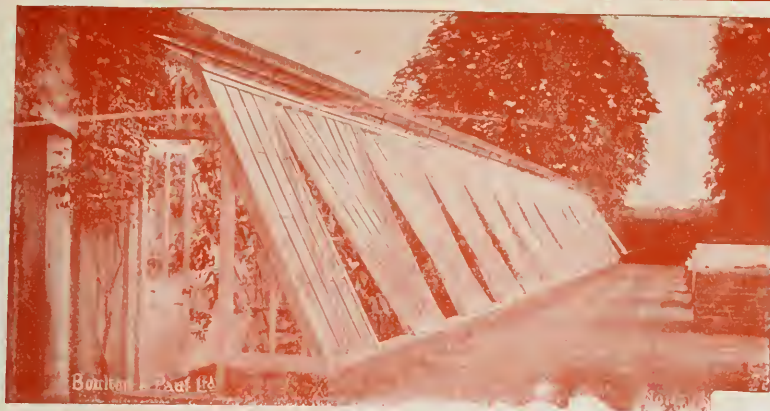
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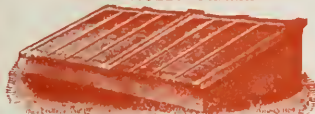
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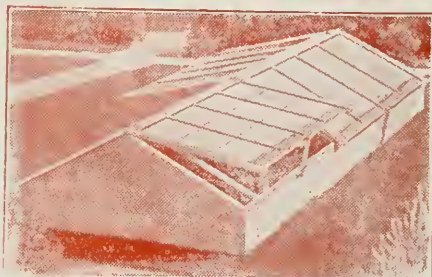
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Royal Horticultural Society of Ireland.

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April 15

and . .

THURSDAY

April 16, 1914

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Ballsbridge—Dublin

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Secretary

5 Molesworth

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LAKEFIELD, FETHARD

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Over 30 Classes open to all Ireland

FOR VEGETABLES, FRUIT AND FLOWERS

£10 Prize offered for Sweet Peas

12 SPRAYS OF 12 NAMED VARIETIES

£3 Prize offered for Carnations

Schedules from Hon. Secs.

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J. G. O'BRIEN, Lakefield, Fethard, Co. Tipperary

WARRENPOINT FLOWER SHOW.

Preliminary Notice.

The above Flower Show will be held on Wednesday, 5th August, 1914, at Warrenpoint. Nurserymen's Classes comprise exhibits of Roses, Sweet Pea, and group of Plants. Amateur Classes include Roses, Sweet Pea, Carnations, Ferns, Decorative House Plants, Hardy Garden Flowers, &c., &c. Two silver cups, gold medal, and a number of other valuable prizes will be awarded. Schedules will be sent on application to the Hon. Sec. of the Flower Show Committee

Dr. G. W. Connor, ^{THE} COTTAGE, Warrenpoint

CO. CLARE HORTICULTURAL SOCIETY

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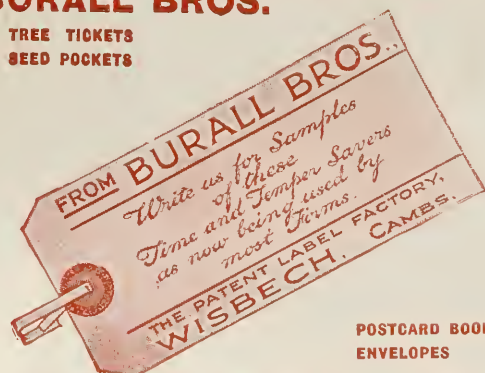
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1/-	tin for 12 galls. solution	} Free Tins and Cases.
1/6	" 25 " "	
6/-	" 100 " "	

LIQUID. 1-50.

1 gallon	- 2/-	- drum free
1 "	- 3/8	- " 9d. extra
2 "	- 6 6	- " 1/6 "
5 "	- 14 -	- " 2/6 "
10 "	- 25 6	- cask 5/- "

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Smithfield Ironworks, Leeds, and New
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LONDON, S.E.

I READ!!

on page 562 of "The Gardener," S.P. number, Jan. 31, 1914, the last words of Mr. Victor Hamel's letter: "I found MACKERETH'S SWEET PEA MANURE very good indeed." On page 561 there was a portrait of Mr. Victor Hamel, "the boy champion of New Zealand" and some of his cups (5 trophies and two medals).

Mr. G. C. Holder, of Portirua, N. Z., wrote me, Dec., 1913: "Have only shown at one large show this season, that of the New Zealand Society, held at Wellington last week, where I won the three classes in which I entered, *i.e.*—the 18 vases trophy, value 25 guineas; and the New Zealand Championship, 12 vases; 30 guineas trophy both challenge trophies—so that with the usual mixture of soil and Mackereth's 'persuader,' I felt rather pleased."

I MAINTAIN MY SP. S. P. MANURE PUTS THE FINISHING TOUCHES ON!

May be had from Messrs. Edmondson Bros., 10 Dame Street, Dublin; Mr. S. A. Jones, 68 High Street, Kilkenny; Messrs. S. McGredy & Son, Portadown; Mr. Jas. Walsh, Portadown, or Messrs. Ritchie & Co., Belfast, in tins, 1—each (post free), 14 2/6 each (post free 3/-); in bags 11 lbs., 5/-; 28 lbs., 8/6 5/6 lbs., 14/-; 112 lbs., 25/- CARRIAGE PAID

My STANDARD FERTILIZER is a Codensend where farmyard manure is unobtainable. 48% Animal, 24% Vegetable, 28% Chemical. A cwt. equals a ton of farmyard manure. In bags, Carriage Paid, 11 lbs., 2 3/4; 28 lbs., 4 1/2; 56 lbs., 7 1/2; 112 lbs., 12 6; 224 lbs., 22/-

A post card commands my list of special fertilizers, all Carriage Paid, for Roses, Tomatoes, Vines, Lawns, Fruit Trees, &c., &c.

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Non-Poisonous INSECTICIDES, free from Nicotine, Alcohol, Ether and Arsenic
Effective, Reliable, Economical, and Perfectly Harmless to the Plants and the Operator
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For Black and Green Aphis, Fly, Thrips, Scale, Caterpillars, American Blight, &c., USE PHYTOPHILINE.

For Red or Grey Spider, Mealy Bug, Fungi on Palms or Azaleas, Mildew or Rust on Roses, Chrysanthemums, Peaches, &c., USE VITIPHILINE.

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May Queen, Duke of York, Ninetyfold, Arran Chief,
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10/6 per cwt.

Eclipse, White Beauty, Sir J. Llewellyn, and others,
8/- per cwt.

British Queen, King Edward, Golden Wonder, and
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Up-to-Date, Dalhousie, Factor, Dalmeny Beauty, and
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Hyacinths for pots, to name	2	6
" for outdoor, to name	7	6
" very fine, mixed	4	0
Tulips, single, to name	1	4
" double, to name	1	6
" splendid, mixed	1	0
Iris hispanica	1	0
" anglica	2	0
Crocus	1	0
Narcissus, to name	2	0
" mixed	1	2
Snowdrops	1	2
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All Bulbs are of first-class size. Delivery f.o.b. Rotterdam

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Webbs' Ostrich Plume, mixed colours	6d. and 1s.
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ANTIRRHINUM. —Webbs' New Scarlet Queen	1s.
Webbs' Supreme, nearly every shade	6d. and 1s.
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Webbs' Golden King, golden yellow	6d.
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LUPINS. —Blue, White, Rose, and Yellow	each 3d
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SALPICLOSSIS. Webbs' Harlequin, mixed	6d. and 1s.
STOCK. —Webbs' New Admiration	1s.
Webbs' Bedding	6d. and 1s.
Webbs' Large-flowered Ten Week	6d. and 1s.
SWEET PEA. Webbs' Large-flowering, Mixed	6d.
SWEET SULTAN. —Purple, White, Yellow	each 3d.
SCABIOUS. Webbs' Giant, White, Black, Pink	each 6d.
and mixed	each 3d.
VISCARIA , mixed	3d.

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Seedsman,

Represented by Mr. W. ROURKE, 4 Weston Terrace, North Circular Road, DUBLIN

New Delphiniums.

A MONGST single-flowered Delphiniums the recent trials at Wisley brought to light none to excel Lizzie Van Veen with its lovely Cambridge-blue flowers of three inches diameter. *Belladonna grandiflora* has flowers double the size of the type and of the same lovely shade, whilst the new *Belladonna semiplena* is a capital double-flowered form which secured an Award of Merit. Moerheimi (unanimous Award of Merit, R.H.S.) is the best white, a splendid variety with free-branching stems, continuing in flower from June till Autumn. Rev. E. Lascelles (A.M., R.H.S.) is one of the most striking novelties, with double flowers of a rich royal blue, with a huge white centre, which is remarkable even at a distance. To the writer's taste no new double variety can compare with Statuaire Rude; the colour is a fascinating shade of shot heliotrope, the flowers are nearly three inches across and are borne on spikes with twenty-eight inches of bloom. Cymbeline is the bluest of all singles; it gained an Award of Merit in 1912. Absolutely ravishing is Countess of Hester, with large single flowers of sky-blue. Of dark varieties, The Alake takes a leading place, bearing gigantic spikes of rich blue semi-double flowers with bold white centres (Award of Merit, R.H.S.). Zuster Lugten, with very rich and striking Oxford-blue flowers, is splendid; and Lamartine, though not so new, is one of the best of all dark kinds, as every spike branches, and there is an abundance of striking Prussian-blue white-centred flowers which are good for cutting. Mrs. J. S. Brunton is a perpetual-flowering and very beautiful form of *Belladonna*. All these, and the latest introductions amongst all classes of herbaceous and Alpine plants will be found in the new and very complete Catalogue published by Messrs. Watson & Sons, Clontarf Nurseries, Dublin, post free, to readers of IRISH GARDENING.

Royal Horticultural Society

THE monthly meeting of the council was held at the offices, 5 Molesworth Street, Dublin, on the

13th ult., a good attendance of members being present, with Mr. E. D'Olier presiding. Judges were nominated for the Spring Show, and in view of the then uncertainty of the Royal Dublin Society's Show being held, it was decided that the Flower Show should be held as announced—viz., April 15 and 16. The council have now pleasure in notifying that by courtesy of the Royal Dublin, whose Cattle and Implement Show is unavoidably postponed, the Flower Show will otherwise take place on the previous terms of arrangement, for which the large Central Hall has been kindly lent for the purpose. The following new members were elected—viz., Mr. Robert F. Browne, LL.B., Hopeton, Terenure, proposed as a life member by Lady Moore (Glasnevin); Mr. J. Bracken (Practical), Hort. Instructor, Co. Tipperary, proposed by Mr. W. S. Irving; Mr. J. O'Neill (Practical), Dominican Convent Gardens, Blackrock, and Mr. Robert Teehan, the Blackrock Nurseries (Practical), proposed by Mr. S. Davies (Obelisk Park Gardens); The Portunna (Co. Galway) Horticultural Society, Hon. Secretary, the Rev. J. Griffin being affiliated.

Correspondence.

RECENT Press reports of a Poor Law Board of Guardians meeting give an account of the great ignorance of a South of Ireland (Dungarvan) Board meeting in reference to the pruning of a fruit plot of apple and gooseberry trees, notwithstanding that the Agricultural Department have had for many years a horticultural instructor giving lectures for the benefit of those persons. In this case about 900 apple and gooseberry trees were to be pruned. Three tenders were in for the job, one at fourpence, another at threepence

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For the Greenhouse or Open Border.

Write at once for full particulars of these glorious plants. :: :: :: ::

Special Collections, in bud, from 15/- per dozen; will make a grand display. :: ::

One dozen (*extra good*) in 3 inch pots, 7/6.

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The 'PARAGON'

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SINCE their introduction some few years ago these Trainers have been steadily gaining in public favour. A real boon to Gardeners. Simple, effective and durable; giving ample support and keeping the growing peas in neat straight lines. Do not harbour insects or pollute the soil.

Made 4 ft., 5 ft. and 6 ft. high, and sent out in sets complete ready for putting up, at from 8/6 per set upward. Write for price list.

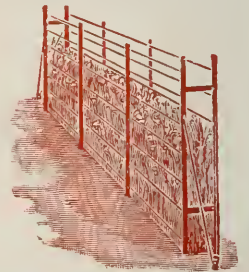
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Trial Order Solicited.

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1 pint for
2 pint for
6 oz. for
4 oz. for
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Feet	each	Carriage Paid
40,000	15/-	
20,000	7/6	
12,000	4/6	
8,000	3/-	
4,000	1/8	

NICOTICIDE FUMIGATORS, 1/- each for 5,000 cubic feet
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PLANT SPRAY

is very effective where it is not convenient to fumigate. We advise you to try it. It will also be useful as a Winter Dressing for Peach, &c.
1 pint 12/-; Pint, 2/-; quart, 3/6; 1/2 gall., 5/-; gallon, 10/-.
Carriage Paid. Ask your Seedsmen for it.

LAWN SAND

entirely eradicates Daisies, Weeds, Moss, &c., & besides stimulating the Grass.

28 lbs. will dress 100 sq. yds. 6d., 1s., and 2s. 6d. Tins:
1/2 cwt., 6s.; 1 cwt., 11s.; 1 cwt., 20s. Carriage Paid.

WORM POWDER

a certain remedy for removing Worms and clearing Worm Casts.
Use 1/2 lb. to the sq. yd. Simply sprinkle fairly thickly on the Grass and water copiously.

14 lbs. 1/2 cwt. 1 cwt. 1 cwt. 5 cwt. 1 ton. 2 ton.
3/- 5 7 6 12 6 £3 £5 10 £10 10

Use also COW'S TOBACCO POWDER & QUASSIA EXTRACT

Ask your Seedsmen for the above and refuse all imitations
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PRICES - Half-pint, 1/-; pint, 1/6; quart, 2/6; half-gallon, 4/-; gallon, 7/6; five gallons, 25/-; ten gallons, 45/-
1 gallon sufficient for 80 gallons of water.

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Exceeds all others in General Fertilising Properties and Staying Powers

Analysis on Application

Sold in Tins, 1/-, 2/6, 5/6 each; and in Kegs, well secured, to prevent loss through exposure, 28 lbs., 8/6; 56 lbs., 13/6; 112 lbs., 22/6

CORRY'S SPECIAL

Chrysanthemum Manure

Sold in Tins, 1/-, 2/6, 5/6, and Bags, 1/2 cwt., 10/6; 1 cwt., 18/-;
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For Fumigating in Greenhouses.

"LETHORION"

Improved Metal Cones

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To destroy Insect Pests. The Candle attached to each Cone only needs lighting, and there is no further trouble. They are most efficacious.

No. 1. For frames and "lean-to's" up to 1,000 cubic feet. Price, 6d. each.

No. 2. For small greenhouses up to 1,500 cubic feet. Price, 8d. each.

No. 3. For a well secured house of 2,000 to 2,500 cubic feet. Price, 1/- each.

Fowler's Lawn Sand

This preparation is for destroying Daisies and other weeds on lawns, and at the same time stimulating the growth of the grass. If one tin is tried as a sample, its value will be at once appreciated. Sales are largely increasing.

Tins, 1/-, 2/6, and 5/- each; Kegs, 1/2 cwt., 8/6; 1 cwt., 16/-;
1 cwt., 30/-

ELLIOTT'S

'Summer Cloud' Shading

Registered Trade Mark No. 14,629.

(The only genuine original and improved article)

For Greenhouses. A pleasant green shade is given to the glass in packets, 1/- for 100 feet of glass, and 2/6 each for 300 feet.

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MANURES

FOR
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PERFECT PLANT FOODS.

THE RESULT OF MANY YEARS PRACTICAL
EXPERIENCE IN GARDENING.

USED ALL OVER THE WORLD.

SOLD BY SEEDSMEN & NURSERYMEN
EVERYWHERE

SOLE MANURE

W. THOMSON & SONS, LTD.
21-23, OXFORD STREET, LONDON, W.

per tree, and a third at thirty shillings for the lot. One poor law guardian said that they were not worth this, and they had not been pruned for many years, so were in a bad state. The one at thirty shillings was accepted. A guardian said that any labouring man could do it easily in a day, and such ignorance as was displayed by some of the members on fruit growing was really shameful, besides the injustice to the profession of gardening.—M. J. BYRNE.

Civic Exhibition, Ireland, 1914.

President :

HIS EXCELLENCY THE LORD LIEUTENANT OF IRELAND.

SIR.—The condition of the housing of the working classes, and the problem of the poor in Dublin, have been brought into lurid prominence during the last few months and strikingly revealed by the Report of the Local Government Board Housing Inquiry Committee. From a hundred quarters the cry has been repeated: "something must be done—things cannot and must not be left as they are." What to do, and how to do it, are the questions confronting us.

It was decided at this Conference to hold a Civic Exhibition in Dublin during the summer and autumn months of the present year, at which all that concerns the welfare of the citizen should be illustrated.

The Linen Hall Buildings, off Capel Street, have been placed at the disposal of the Committee by the Commissioners of Public Works.

The purpose of the Exhibition is to illustrate methods of dealing with the main problems which concern municipal life, such as the housing

of the people, public health and prevention of disease, city slums and how to abolish them, lighting and cleansing, means of transport, upkeep of streets and roads, parks, open spaces and playgrounds, water supply, milk and food supplies and inspection, care of the sick and poor, hospitals and benevolent institutions, the education of the young, the care of school children, continuation and technical schools, museums and schools of art, public libraries and reading rooms and the whole business and industrial life of the city.

There is an earnest desire on the part of those interested that a carefully considered plan should be laid down for the improvement of Dublin, so that in the future its character as a beautiful and dignified capital may be enhanced, whilst making provision for the development of its industries, and for the accommodation of its workers in healthy and conveniently situated dwellings.

His Excellency the Lord Lieutenant has generously offered a prize of £500 for the best plan towards the fulfilment of these objects, on the understanding that the competition will be adjudicated upon by experts of international reputation.

A Guarantee Fund and a Donation Fund have been opened, and the Hon. Treasurers invite your liberal support.

Signed by order and on behalf of the Executive Committee :

ISHBEL ABERDEEN (Chairman).

ROSS HOUSTON (Hon. Sec., *pro tem.*).

LORCAN SHERLOCK.

Lord Mayor of Dublin,	} Hon. Treasurers.
MICHAEL F. COX.	
WILLIAM J. THOMPSON.	

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TRAINING IN—

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Creamery Management, &c. ::

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THE SECRETARY, Department of Agriculture and Technical Instruction for Ireland, Upper Merrion St., Dublin

Glorious Begonias

Winners of Gold Medal at International Exhibition, 1912
Winners of Gold Medal at Ghent International Exhibition, 1913

AWARDED 36 GOLD MEDALS.

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READING

Irish Show Fixtures for 1914.

This list is intended to assist societies in selecting dates for their shows by indicating the arrangements which have already been made and preventing the clashing of show dates.

Secretaries will greatly oblige by sending the earliest possible intimation of their fixtures and of any change which takes place in their arrangements.

- April 15 R. H. S. I., Spring Show, Ballsbridge. Sec., E. Knowlind, 5 Molesworth Street, Dublin.
- " 23 Co. Clare Horticultural Society, Spring Show, Ennis.
- July 10 R. H. S. I., Summer Show, Lord Iveagh's Grounds, Dublin.
- " 15 Lucan, Saggart and Clondalkin Show. Hon. Sec., Mrs. R. Shackleton.
- " 18 Terenure and District Horticultural Society, Terenure, Dublin. Hon. Sec., A. Phipps, Esq., St. Ann's, Kimmage Road, Dublin.
- " 23 Fethard Flower and Industrial Society's Show, Lacksfield, Fethard. Hon. Sec., Rev. R. C. Patten.
- " 29 Stillorgan and Foxrock Horticultural Society, at The Paddock, Leopards-town.
- " 30 Killarney Flower and Industrial Society, Killarney. Hon. Sec., J. Henry, Esq., Danesfort Cottage, Killarney.
- " 30 Co. Clare Horticultural Society, Ennis. Summer Show, Ennis. Hon. Sec., Rev. R. Scott, The Manse, Ennis, Co. Clare.
- Aug. 5 Portunna Horticultural and Industrial Show. Hon. Sec., Rev. J. Griffin, Clonturbert Rectory, Ballinasloe.

- Aug. 5 Warrenpoint Flower Show. Hon. Sec., Dr. George W. Connor, The Cottage, Warrenpoint, Co. Down.
- " 13 Co. Galway Horticultural Show, Ballinasloe. Hon. Sec., Miss O'Shaughnessy, Birch Grove, Ballinasloe.
- " 15 Naas District Horticultural Society, Naas. Hon. Sec., Dr. O'Donell Browne, Gortnagrena, Naas.
- " 25 R. H. S. I., Autumn Show, Lord Iveagh's Grounds, Dublin.
- Sept. 3 Kilkenny Horticultural Society, St. James's Park, Kilkenny. Hon. Sec., Miss F. E. Rutler, Lavistown House.

Flower Show for Warrenpoint.

THE Warrenpoint Entertainment and Improvement Committee have decided to hold a flower show in Warrenpoint on the first Wednesday in August next. A schedule of exhibits has been compiled, and it is both comprehensive and varied. Professional nurserymen and amateurs are invited to compete, separate sections being provided for each. In the nurserymen's section two silver cups and a gold medal are to be awarded as first prizes, and it is anticipated that the various classes under this heading will be well filled. The amateur classes include exhibits of flowers and plants of all kinds in season at the time, and the prizes offered are valuable and generous. Hon. Sec. of the Flower Show Committee—Dr. George W. Connor, The Cottage, Warrenpoint.

Co. Clare Horticultural Society.

AT a general meeting of this society it was decided to change the date of the Spring Show from April 16th to April 23rd. Owing to his leaving Ennis, Mr. H. Bill was compelled to

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10-inch, 28/6; 12-inch, 32/6
14-inch, 36/6; 16-inch, 40/-

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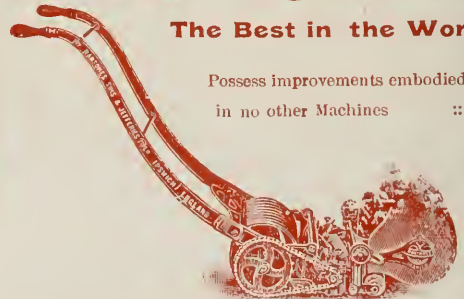
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HORSE AND PONY MACHINES, the best large Machines.

Motor Mowers, Lawn Sweepers, Garden Rollers, Edge Trimmers, Golf Rollers, &c., &c.

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Exhibition Sorts. Per packet, 6d. Twelve Sorts for 5/-

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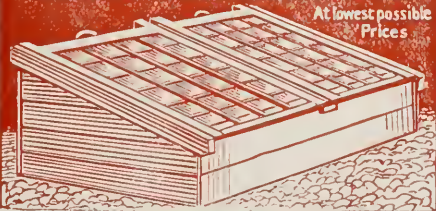
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size 6 ft. by 4 ft. Best materials, painted two
coats, glazed with 21 oz. glass, ready for use.
PRICE 30/- packed free on Boat.

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or to the Canadian Government Agent, 44 Dawson
Street, Dublin, or any Licensed Booking Agent

resign the secretaryship, but the society was extremely fortunate in being able to secure the services of the Rev. R. Scott as his successor. As Mr. Scott is one of the most capable amateur gardeners in Ireland, and has had extensive show experience, great hopes may be entertained for the future prospects of the society. The Hon. Edward O'Brien was elected to succeed Captain Cooke, R.E. (who is also leaving Ennis), on the Committee.

Catalogues.

GARDEN FLOWERS AND ALPINES from MESSRS. WILLIAM WATSON & SONS, Clontarf.—This catalogue seems to improve year by year, and now contains good collections of both alpine and herbaceous plants. The novelty list is an interesting one, containing many good things. Achillea Perry's White, which may be described as an improvement on the Pearl, and will be a valuable plant for cutting and exhibiting in cut flower collections: Aubrietias, Lloyd Edwards and Peter Barr are two outstanding new varieties: Campanulas and many other good plants follow. The new Red Jasminum is only fit for botanical collections. The florists' flowers include Border Carnations, early flowering Chrysanthemums, Dahlias, Pentstemons, a fine collection of Delphiniums, &c., with some good shrubs and climbers at the end.

CHEAL'S DAHLIAS AND SPRING FLOWERS.—This firm has one of the best collections of Dahlias in the United Kingdom, and claimed many of the leading awards and gold medals last season. Crawley Star which is one of their novelties, is a

clear rose-pink single of a new type called the Cosmea flowered Dahlia. Among other awards it has received a first-class certificate from the National Dahlia Society. The new Cactus Dahlia offered are selected with stiff erect stems to be of value in the garden as well as on the show board. There is a large list of Cactus varieties, followed by the Pompon Cactus, singles, peony flowered collarette and all the known types of the Dahlia family, while at the end of the catalogue are early flowering Chrysanthemums, Violas and bedding plants.

MESSRS. JAMES CRISPIN & SONS, F.R.H.S., Nelson Street, Bristol, inform us that they are exhibiting at the Royal Dublin Society's Show on April 15. They are well known as Horticultural Builders, Heating and Ventilating Engineers. Catalogues may be obtained on application.

Weed Worries.

FROM now on garden and park walks, avenues, &c., will be producing their spring crop of weeds, and the unfortunate aspect of the matter is that all available labour is required for other work than scuffling these walks. However, science has come to the rescue, and has given us weed killing preparations, which reduce the labour necessary to destroy the weeds to a minimum. There is no doubt that of these preparations Smith's "Perfect" Weed Killer (Liquid and Powder) holds a premier place, and the Irish Agent (D. M. Watson, 61 South Great George's Street, Dublin) finds the demand still increasing. This is mainly the result of satisfied users recommending Smith's Weed Killer to their friends. Another thing which has stood to Smith's Weed Killer is

Smith's "Perfect" Patent Powder

WEED KILLER

MARVELLOUS INVENTION

MOST EFFECTIVE

Nothing like it ever seen before Soluble in Cold Water. All Tins Free. No Return Empties

4 Tins when mixed with water will cover about 400 square yards.

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The Powder Weed Killer I got from you last month 'is the best I ever used.

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Your Weed Killer is the only one I ever tried that is any use. Yours never fails

—L. CREAGHE CREAGHE-HOWARD

1 Tin, sufficient to make	25 gallons	£0 1 9	
4 Tins	100	0 6 6	
8 Tins	200	0 12 6	Box 3d. extra
12 Tins	300	0 17 0	4d. "
20 Tins	500	1 7 0	6d. "
40 Tins	1,000	2 8 0	1s. "

Carriage Paid on 8 Tins and upwards to Stations in Ireland.

SMITH'S LIQUID WEED KILLER

One gallon to make 25 gallons for use

1 gallon	1 9	6 gallons	9 6	16 gallons	1 2 0
2 "	3 6	8 "	12 6	18 "	1 5 0
3 "	5 0	10 "	14 0	20 "	1 7 0
4 "	6 6	12 "	17 0	40 "	2 8 0
5 "	8 0				

Carriage Paid on 8 gallons and upwards.

* Gallons when mixed will cover an area of about 400 square yards.

	Double Strength (1 to 50)	PRICES —	
1 gallon	3 6	5 gallons	13 6
2 "	6 6	6 "	16 0
3 "	9 3	8 "	21 0
4 "	11 6	10 "	25 0
		16 gallons	38 0
		20 "	46 0
		40 "	88 0

Carriage Paid on 4 gallons & upwards. Drums and Casks charged extra, but full price allowed when returned in good condition, carriage paid

IRISH AGENT—

NOTICE. These Preparations are Poisonous

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Insecticides, Fungicides, Fumigants, Spraying Machines, &c.

the fact that the solution is a much stronger one than many on the market, and that even when the prices of the ingredients advanced considerably (as they did a year or two ago) the full original strength has always been maintained. Prices, &c., are given on page xvi of this issue, and it should be remembered that Mr. Watson also makes a speciality of all kinds of Insecticides, Fungicides, Vaporising Compounds, Fertilizers, &c. In fact he has a fair claim to be considered the only specialist in Ireland in Horticultural Chemicals.

Preserving Labels.

LABELS and plant stakes are usually preserved by tarring or painting the portion that goes into the ground: but neither method can be said to be quite satisfactory, fungi and moisture often finding a way in, especially just above the surface soil. A German writer mentions a plan which appears to be practicable, simple, and inexpensive. When the stakes are thoroughly dry they are placed with their lower ends to soak in lime water for several days, after which they are taken out and allowed to dry. They are then painted over with dilute sulphuric acid and put in the sun to dry. This results in the formation in the treated wood of calcium sulphate, or gypsum, which is almost insoluble in water, and fairly hard, and also is beneficial to plants on account of its richness in lime. This treatment of labels and stakes would require several years to test it satisfactorily, but it seems to serve the purpose admirably. The treatment might also prove useful for gate-posts, the principals of fences, &c.

Dublin Wholesale Markets.

For the past month there is very little that is fresh to record, and prices show but little alteration from the previous month, with the exception of cabbages, which have dropped considerably. For them, indeed, it is high time that prices should assume a normal tone.

The markets are fairly well supplied with seasonable vegetables of all kinds, and active buying and satisfactory prices were the main features of the auctions. Most of the rhubarb now on sale is forwarded from home sources, the demand steady and brisk, and the high prices well maintained. Celery sold well, but its season is now over, while seakale and

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Protects your new sown Grass
Seed from Birds.

Protects Garden Beds from Cats,
Rats and Mice.

Put a little round every Seedling and Plant.
Put a little in every Seed Drill. Sprinkle a
little over every bed before digging over and
bedding out.

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6d. and 1/- Tins and 12/6 per Cwt.,
from all Stores, Chemists,
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SANITAS POWDER.

Asparagus are taking its place. Brussels sprouts, an excellent crop all through, were carefully and neatly marketed, and commanded a ready sale. Broccoli and Irish seakale are well in demand, and scallions are now arriving in small quantities.

Fruits from home sources are mostly confined to apples of the variety Bramley's Seedling, packed in barrels and bushel boxes bearing the label of the Ulster Fruit Growers' Association. They hail chiefly from Armagh. Other small consignments of very select lots in two and three dozen boxes were also in evidence throughout the month, and realised fancy prices. The markets continue to be supplied with foreign, Colonial, and cross-channel fruits, and are easily disposed of at handsome prices, especially those from the Cape. Samples of tomatoes are arriving from the Canary Islands.

Spring flowers are arriving in large quantities, particularly from Guernsey and Scilly. There is an abundant and bright display of good Daffodils in variety. Tulips in a varied assortment of colours, both double and single, are also good and plentiful.

There is a brisk demand for Violets, particularly home-grown, as the Continentals reach the market with a good deal of their original freshness and sweetness lost. Other flowers, flowering plants, and foliage subjects were much the same as last month, and met with an active demand.

The hucksters plied a lively trade in the "dear little Shamrock" ('Tara and Vinegar Hill varieties?') for the few weeks preceding Patrick's Day. Indeed, the salesmen got a poor show in the competition.

The following is a price list for the month:—

		FRUIT.	
Apples—		From	To
Bramley's		s. d.	s. d.
Seedling	per barrel (1sts)	28 0	35 0
" "	per bushel ..	5 0	8 0
" "	per dozen	1 6	2 0
American	per barrel	32 0	36 0
Grapes(Colmar's)	per lb.	1 4	2 6

		VEGETABLES.	
Artichokes	per float	1 0	1 9
Asparagus	per bunch	2 6	3 6
Cabbage (York)	per large load	9 0	15 0
" (Savoy)	per large load	7 0	14 0
Carrots	per doz. bunches	1 0	1 3
Celery (White)	per dozen	1 6	2 0
Cauliflowers	per flasket (1sts)	3 6	5 0
Lettuce	per dozen	0 4	0 8
Leeks	per bunch	0 2	0 1
Scallions	per bunch	0 6	0 10
White Turnips	per bunch	0 4	0 8
Sprouts	per float	1 6	3 0
Rhubarb	per dozen	0 10	1 6
Seakale	per bunch	2 3	3 0
Parsnips	per doz. bunches	1 0	1 1
Pineapples	each	3 0	3 6

		FLOWERS.	
Arum Lilies	per dozen	1 6	2 6
Carnations	per dozen	1 6	2 0
Freesias	per doz. bunches	2 6	3 0
Anemones	per doz. bunches	0 9	1 6
Daffodils	per doz. bunches	2 0	3 6
Tulips	per doz. bunches	1 3	1 6
Violets	per doz. bunches	0 8	1 6
Shamrock	per basket	0 9	1 0

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Eight distinct shades, 3 of each for 7/6

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THE "G.S.A." HALF-GUINEA SET

Comprising—

1. Bright and Blued Hoe, 6 in. Blade, Riveted Eye Tang, 5 ft. Ash Handle.
2. Half-bright Steel Spade, 5 by 8½ in. Blade, Riveted Straps, Riveted Eye Handle.
3. Riveted Garden Rake, 12 Teeth, Riveted Eye Socket, 5 ft. Ash Handle.
4. Elastic Steel Garden Fork, 4 Prong, Riveted Straps, Riveted Eye Handle.
5. Bright and Blued Garden Trowel, 6 in. Blade, Bright Ferrule, Polished Handle, Length 11 in. over all
6. 3 Prong Weeding Fork, Bright Ferrule, Polished Handle, Length 17 in. over all
7. Dutch Hoe, 5 in. Bright Steel Blade, Bright Ferrule, 5 ft. Ash Handle.

Best Material, very strong, Highly finished.

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XL ALL NICOTINE INSECTICIDE WASH for Syringing, Dipping, and Dressing Fruit Trees and Plants. Mealy Bug, Scale, &c., cannot exist where this is used.

XL ALL INSECTICIDE WASH B (*sine* Nicotine), best non-poisonous Wash on the market.

Other Preparations of great Renown are **XL ALL GRUB KILLER** for digging in when the soil is fallow. **RICHARD'S WORM KILLER**, for lawns, both non-poisonous.

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SPECIAL POTS of all descriptions. Bush Bowls and Fern Pots from 2d. each.
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PERPETUAL TREE CARNATIONS. Well rooted cuttings, including Enchantress, Britannia, May Day, Pink Imperial, White Perfection, Mrs. Burnett, 3s. doz., carriage free.—Sanford's Ltd., Hall Green Nurseries, Birmingham.
CHRYSANTHEMUMS. Good, strong-rooted cuttings, including Singles, Felicity, Mrs. W. Buckingham, R. Milner, Mensa, Countess Egmond, Lady Furness. Decoratives—Mrs. Roots, Romance, Market Red, Tuxedo, December Gold, D. Ingamelis, 1s. 6d. per doz., free.—Sanford's Ltd., Hall Green Nurseries, Birmingham.

ROCK AND ALPINE PLANTS. Good clumps Aubrietia, Sedums, Saxifrages, &c., 2s. doz., free.—Sanford's Ltd., Hall Green Nurseries, Birmingham.

BIRDS SCARED.—Rotless Tanned Netting. Small mesh; very superior; as supplied by us to the Royal Gardens. Satisfaction or cash refunded. 100 x 1 yard, 3/9; 2 yards, 7/6; 3 yards, 11/3; 4 yards, 15/-; 50 x 6 yards, 11/3; 25 x 8 yards, 7/6; carriage paid. Any length and width supplied. **POTTER BROS. (Dept. T.), Shrewsbury.** Estd. 58 years.

LAWN MOWERS.—Nothing to equal them, only 12/6; Garden Rollers, 37/6; Seats, 8/6; Barrows, 14/6; Water Barrows, 20 gallon, 25/6; Garden Hose, 60 feet, 9/11. Get our free list and save money. **POTTER BROS. (Dept. T.), Shrewsbury.**

TENNIS COURT NETTING.—Rotless; Superior. Strong Tarred Top and Bottom Lines. 25 x 2 yards, 6/-; 3 yards, 7/-; 4 yards, 8/-. Tents, 22/-. Army Bell Tents, all complete, 37/6. Officers' Tents, 50/. **POTTER BROS. (Dept. T.) Shrewsbury.**

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The Committee require the services of an Instructor in Horticulture, whose qualifications must be approved by the Department of Agriculture and Technical Instruction for Ireland. Salary at the rate of £100 per annum, with expenses of locomotion.

Applications on the prescribed Forms, with copies of three recent testimonials, must be forwarded to the undersigned not later than the 16th May, 1914, from whom full particulars may be obtained.

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HEATING APPARATUS.

Carnation, &c., House,
22 ft. by 11 ft. For
:: Brickwork Base, ::

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Price includes Plant
:: :: Stages :: ::

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Head Office: Nelson St., **BRISTOL**



MODERN . . GLASSHOUSES

Superior in Design ::
Material, Construction
and above all utility.

**WOOD LATH and
SCRIM BLINDS :**

IN EVERY VARIETY.

For Shading CONSERVATORIES, GREENHOUSES, &c.

Our Shadings are recommended by
Horticultural Authorities.

Ranges of Glasshouses, complete with Heating Apparatus, Tanks, Peach and Vine Trainers, Wood, Iron, or Slate Staging, Potting and Boiler Houses, with every modern accessory.

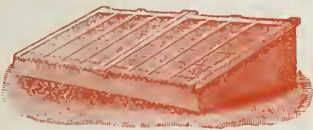
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SUN LOUNGES, VINERIES, PEACH
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HEATING AND DOMESTIC SUPPLY

INSTALLED IN PUBLIC BUILDINGS :
MANSIONS HORTICULTURAL BUILDINGS
&c., &c.



Schemes and Estimates Free

GARDEN FRAMES

In great variety always in Stock
PRICES ON APPLICATION

**BOULTON & PAUL, NORWICH
LIMITED ENGLAND**



WINDOW GLASS

Polished Plate for Shop Windows.
Horticultural Glass at Lowest Rates

DEATH TO THE WEEDS !

HOYTE'S WEED KILLER.

Strongly Recommended for the Destruction of Weeds, &c.

Price, 2s. per gallon ; 5 gallons, 1s. 6d. per gallon ;
10 gallons, 1s. 3d. per gallon ; Original 40-gallon casks,
1s. per gallon.

**HOYTE & SON, The City of Dublin Drug Hall,
17 LOWER SACKVILLE STREET, DUBLIN**
Please mention this Paper

Guaranteed Garden Tools

THE "G.S.A." HALF-GUINEA SET

Comprising—

1. Bright and Blued Hoe, 6 in. Blade Riveted Eye Tang, 5 ft. Ash Handle.
2. Half-bright Steel Spade, 5 by 8 1/2 in. Blade Riveted Straps, Riveted Eye Handle.
3. Riveted Garden Rake, 12 Teeth Riveted Eye Socket, 5 ft. Ash Handle.
4. Elastic Steel Garden Fork, 4 Prong, Riveted Straps, Riveted Eye Handle.
5. Bright and Blued Garden Trowel, 6 in. Blade, Bright Ferrule, Polished Handle, Length 11 in. over all
6. 3 Prong Weeding Fork, Bright Ferrule, Polished Handle, Length 17 in. over all
7. Dutch Hoe, 5 in. Bright Steel Blade, Bright Ferrule, 5 ft. Ash Handle.

Best Material, very strong, highly finished.

MONEY READILY REFUNDED IF DISSATISFIED
Write for our List.

Growers Supply Association, Ltd.
BOULTON WORKS (A) BIRMINGHAM 10/6

Carriage

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APPOINTED BY



ROYAL WARRANT

**RANSOMES'
LAWN MOWERS**

The Best in the World



Possess improvements embodied
in no other Machines ::

**HAND POWER MACHINES, in all kinds
and sizes to suit every user.**

**HORSE AND PONY MACHINES, the best
large Machines.**

Motor Mowers, Lawn Sweepers, Garden Rollers, Edge
Trimmers, Golf Rollers, &c., &c.

For particulars apply for List No. 53.

RANSOMES, SIMS & JEFFERIES, Ltd.
IPSWICH

The oldest and most experienced firm in the Lawn Mower Trade

KINGSTOWN FLOWER SHOW

WEDNESDAY, 15th JULY, 1914
Schedule of Prizes, &c., from The Secretary, Kingstown
Horticultural Society, Technical School, Kingstown

**FAMOUS
FOR
40 YEARS**

WITH'S MANURES

**7 LBS. FOR
A 1/-
(By Post, 1 1/4)**

Can now be obtained of all Seedsmen in sealed "BUMPFR" 1/- PACKAGES
UNIVERSAL MANURE (for General Garden Use).
**SWEET PEA, "MUM," TOMATO, ROSE,
VINE, CUCUMBER, DAHLIA, FRUIT,
BEGONIA, POTATO & LAWN MANURES**

Results speak for themselves.
One user secured 41 Prizes out of 41 Exhibits.

ALL IN 1/- PACKAGES. (BY POST, 1 1/4)
THE LARGEST IN THE MARKET
Particulars and Gardening Booklet Free.

WITH'S MANURE CO., HEREFORD.

OR OF ALL SEEDSMEN.

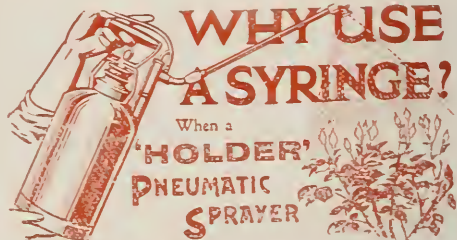
WATER GARDENING

One of our fields is a natural water garden and we have long cultivated in it a large collection of plants suitable for beautifying streamside or lake

NYMPHÆAS

Water lilies are an essential feature. Our list, showing the wide range of colour that the newer hybrids give, with notes on culture, depth of water required, &c., will be sent post free on application.

R. Wallace & Co., Colchester



- 1 Will do ten times the work in a fraction of the time
- 2 Will do it more completely, more thoroughly, and with no waste of fluid
- 3 It is simple to use, and will save its cost in a single season

Prices from 12.6. List G3 from
H. Hartjen & Co., 35/37 Noble Street, London, E.C.

SHANKS'S LAWN MOWERS

Efficient, strong, and light—the ideal mowers for all purposes. The favourites of amateur gardeners and professionals. Have secured Royal favour, and been awarded numerous gold medals and testimonials. Of all ironmongers and seedsmen.

**A. SHANKS & SON, Ltd.,
ARBROATH,
& Bush Lane,
LONDON.**



BRITISH COLUMBIA.

A MOST PROSPEROUS CANADIAN PROVINCE.

THE ORCHARD OF THE EMPIRE.

A LAND OF FRUIT AND FLOWERS

Offers many inducements to Settlers, including free education and good laws

Climate and Soil eminently suitable for—
**MIXED FARMING, FRUIT GROWING,
DAIRYING, HORSE, HOG, AND CATTLE
RAISING AND POULTRY FARMING.**

Easily Accessible Markets and Good Prices for all classes of Agricultural Produce

**Production (estimated) from Agriculture,
in 1913, \$24,000,000**

SPECIAL LAND CONCESSIONS TO SETTLERS.

The Country for the Farmer with some Capital, and for all Classes of Agricultural Workers and Domestic Servants.

Full particulars on application to—
**J. H. TURNER, Agent-General for B.C., Salisbury House,
Finsbury Circus, London.**

'EUREKA' WEED KILLER.

SAVES WEARY WEEDING.

50 gallons of mixed solution will kill all weeds on 200 square yards of paths, &c.

POWDER.

1/-	tin for 12 galls. solution	} Free Tins and Cases.
1/6	" 35 "	
6/-	" 100 "	

LIQUID. 1-50.

1/2 gallon	- 2/-	drum free
1 "	- 3/6	" 9d. extra
2 "	- 6/6	" 1/6 "
5 "	- 14/-	" 2/6 "
10 "	- 25/6	" cask 5/- "

'EUREKA' Insecticide, Lawn Sand, Bordeaux Mixture, Worm Killer, Hayward's Summer Shade, "Eurekatine" fumigant, &c.
Larger sizes of above articles at proportionately lower prices

SOLD BY AGENTS

Full list with booklet, "Chemistry in Garden and Greenhouse," of agents or the makers—

TOMLINSON & HAYWARD, Ltd., LINCOLN

DUBLIN AGENTS: T. McKenzie & Sons, Ltd., 212 Gt. Brunswick St.; W. F. Wells & Son, 61 Upper Sackville St.; Sir J. W. Mackey, Ltd., 23 Upper Sackville St.; Hoey & Robertson, Ltd., 22 Mary St., &c., &c.

Wm. DUNCAN TUCKER & Sons, Ltd.

RECIPIENTS OF LARGE GOLD MEDAL & DIPLOMA OF HONOUR AT R.H.I.E. 1912



Write for Horticultural Catalogue No. 18. Sent post free on application
Glasshouses of every description erected complete in any part of the country

LONDON OFFICE, 27 CANNON ST., E.C.

Works—TOTTENHAM.

ESTD 1835.



GREEN'S

Lawn Mowers & Rollers



"STAND PRE-EMINENT."

Make perfect Golf Greens, Tennis Courts
Bowling Greens and Lawns.

Recent awards seven Gold Medals, nine
Silver Medals.

Motor Lawn Mowers made in various sizes
Order Green's Make, firmly refuse substitutes.

SUPPLIED BY ALL IRONMONGERS.

Please Write for List No. 21.

THOMAS GREEN & SON, Ltd.

Smithfield Ironworks, Leeds, and New
Surrey Works, Southwark Street,
LONDON, S.E.

I READ!!

on page 562 of "The Gardener," S.P. number, Jan. 31, 1914
the last words of Mr. Victor Hamel's letter: "I found
MACKERETH'S SWEET PEA MANURE very well indeed." On page 561 there was a portrait of Mr. Victor Hamel, "the boy
champion of New Zealand" and some of his cups 15 trophies
and two medals.

Mr. G. C. Holder, of Porirua, N. Z., wrote me, Dec., 1913:
"Have only shown at one large show this season, that of the
New Zealand Society, held at Wellington last week, where I
won the three classes in which I entered, i.e.—the 18 vase
trophy, value 25 guineas; and the New Zealand Championship,
12 vases; 20 guineas trophy both challenge trophies, so that
with the usual mixture of soil and Mackereth's 'persuader,'
I felt rather pleased."

I MAINTAIN MY SP. S. P. MANURE PUTS THE FINISHING
TOUCHES ON!

May be had from Messrs. Edmondson Bros., 10 Dame Street
Dublin; Mr. S. A. Jones, 68 High Street, Killybegs; Messrs.
S. McGredy & Son, Portadown; Mr. Jas. Walsh, Portadown,
or Messrs. Ritchie & Co., Belfast, in tins, 1- each post free.
14 2/6 each post free 3-; in bags 11 lbs., 5-; 25 lbs. 8 6
56 lbs., 14-; 112 lbs. 25- CARRIAGE PAID

My STANDARD FERTILIZER is a Godsend where farmyard
manure is unobtainable. 48 Animal, 24 Vegetable, 28
Chemical. A cwt. equals a ton of farmyard manure. In bags.
Carriage Paid, 14 lbs., 2 3-, 28 lbs., 4-; 56 lbs. 7-; 112 lbs.
12 6-; 224 lbs. 22-.

A post card commands my list of special fertilizers, all
Carriage Paid, for Roses, Tomatoes, Vines, Lawns, Fruit
Trees, &c., &c.

or direct from

G. H. MACKERETH

The Sweet Pea Clearing House
ULVERSTON

The most unique Sweet Pea list in the world
with intense cultural directions will be posted
:: :: on receipt of post card :: ::

By Special Appointment to



His Majesty the King.

MACKENZIE & MONCUR, LTD.

HOTHOUSE BUILDERS
HEATING, VENTILATING, AND ELECTRICAL
:: :: ENGINEERS, &c. :: ::

SPECIALTIES:

All kinds of Hothouses in Teakwood, Archangel Larch or Petersburg Redwood.
Improved Ventilation Gearing * Patent Wood Spar Blinds * Heating
by Low Pressure, Hot Water or by Steam. * Improved Duplex System of
combined Hot Water Service and Heating. * Improved Ironclad System of
* * Electric Lighting—the only absolutely fireproof system. * *

**WE DO NOT WORK ON THE UNSATISFACTORY PIECE-WORK SYSTEM, ALL
WORK UNDERTAKEN BY US BEING CARRIED OUT BY HIGHLY SKILLED
* * * WORKMEN AT TIME RATES. * * ***

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Telegrams: "HOTHOUSE, EDINBURGH," and "TREIBHAUS, Camroad, LONDON,"

W. RICHARDSON & Co.

SPECIALISTS IN THE MANUFACTURE OF
HORTICULTURAL BUILDINGS & HEATING APPARATUS

DARLINGTON



ERECTED FOR THE RT. HON. THE EARL OF ABERDEEN, VICE REGAL LODGE, DUBLIN.
(Per H. M. Commissioners of Public Works).

THE REASON WHY customers come to us for Glasshouses and Heating Apparatus is because they know they will get the **best value for the least possible expenditure.** A few of our customers in Ireland include the Duke of Leinster, the Right Hon. Chief Baron Palles, The Marquess Conyngham, The Marquesses of Headfort, Londonderry; Earl Fitzwilliam, the Earls of Donoughmore, Dunraven, Erne, Longford, Listowel, Rosse, Aberdeen; Lords Ardilaun, Barrymore, Castletown, Cloncurry, Dunleath, Farnham; Lady Maurice Fitzgerald; Colonel the Hon. C. F. Crichton. H. P. Goodbody, Esq., &c., &c.

LONDON OFFICE:
BELGRAVIA CHAMBERS
VICTORIA STREET
WESTMINSTER, S.W.

If you have a garden you will want

“ABOL”

INSECTICIDE NON-POISONOUS

The World's Best Pest Destroyer.

The one never failing remedy for insects and diseases in gardens and greenhouses. Safe, certain, and reliable. Unequalled for MILDEW ON ROSES and other plants. Used at Royal Gardens, Kew, Hampton Court and at White City.

$\frac{1}{2}$ pt., 1/-; pt., 1/6; qt., 2/6; $\frac{1}{2}$ gall., 4/-; gall., 7/6.

“ABOL” FERTILIZER

Very highly concentrated, and much more Economical and Efficacious than any other. Imparts a wonderful and lasting benefit to all vegetation—is quick and sure in effect.

Tins, 6d. and 1/-, postage 6d. extra; 7 lbs. 2 6; 14 lbs., 4 6. Bags, 28 lbs. 7 6; 56 lbs. 12 -; 112 lbs. 18 -;

PATENT SYRINGES

Specially Recommended by

THE NATIONAL ROSE SOCIETY.



Give just the right spray for applying washes efficiently and with absolute economy. Vary spray from fine to medium or coarse, as desired.

Now fitted with extra rings on the barrel to take the spare caps—thus the “Abol” is as perfect as it is possible for a sprayer to be.

No. 4 (1 x 14), 8/6; No. 5 (1 x 20), 10/6. No. 6 (1 $\frac{1}{2}$ x 20), 14/6. Bend, 1/6 extra

A 32 pp. Treatise on Garden Pests and Diseases, fully illustrated will be sent to any reader

GRATIS AND POST FREE.

OF ALL NURSERYMEN
IRONMONGERS, &c. :

or Sole Props. and Mfrs.

E. A. WHITE, Ltd.
9 Beltring, Paddock Wood, Kent.

“ABOL” WORMKILLER

The very best for earthworms on Putting and Bowling Greens, Garden Tennis and Croquet Lawns, NON-POISONOUS.

Tin, 1 -; post 6d. extra. 7 lbs. 1 9; 14 lbs. 3 -; 28 lbs., 5 -; 56 lbs., 7 6; 112 lbs., 12 -; 5 cwt., £2 17 6; 10 cwt. £3 15; 1 ton, £7.

EDMONDSON'S PRIZE BEE HIVES

The C.D.B. (With latest :: improvements)

The TWO-CRATE

The No. 1

Bar Frames, Sections, Comb Foundation, and all Beekeepers' Appliances

Illustrated Price List Free :: ::

EDMONDSON BROS.
10 Dame Street, DUBLIN.



Irish Farming World Directory, 1914.

THE "I.F.W." Directory and Annual for 1914 is now on sale at the railway bookstalls and at book-sellers, and on the whole it will be conceded that the number is well up to its usual standard of merit. Its main feature, the Directory of Land Stewards and Gardeners in Ireland, has been carefully revised up to the end of October last, and will be found of special value for reference amongst those who wish to know "Who's Who" in those circles in this country. Then there is a comprehensive list of Irish fairs for the present year; and important additions in the live stock produce table, and ready reckoner, marketing and hourly wages table. The special articles include the following:—"Education and Training of the Young Gardener," by Mr. J. H. Cumming; "Kerry Cattle for Milk and Beef," by Mr. John Hilliard; "A Dairy Farm in Lanarkshire," by Mr. John Simpson; and "Showing Poultry—Hints to Secretaries," by Miss MacQuillan. These are supplemented by editorial contributions on "Sales of Irish Pedigree Cattle" and "Irish Sheep Sales in 1913," also practical suggestions on such topics as spraying potatoes, the farrowing sty, forage plants, manures for different crops, measuring haystacks, seed required to sow an acre, sprouting potatoes, rations for live stock, scour in calves, milk fever, measurement of timber, storing turnips, estimating weight of cattle, distances for planting fruit trees, and useful hints in reply to the query: When does a soil need lime? There is a revised list of the chief officials of the Department of Agriculture, with the names and addresses of the members of the Council of Agriculture. To com-

plete all, there are farm and garden calendars for the year, and a collection of photos depicting prize-winning stock. The price is 1s. post free, and copies can be obtained direct from the Office, 15 Fleet Street, Dublin.

Correspondence.

The following interesting letter has been received from a correspondent:—

"Reading your excellent contribution in January IRISH GARDENING it strikes me as very peculiar that after an elaborate collection of statistics you have found that the first three cooking apples for commercial work are Bramley, Lane's, and Grenadier. If that question had been put to any farmer in Grange, three miles west of Portadown, in 1889, it would have been similarly answered! I thought you would like to hear this. I always believed it was from that very district fruit culture spread in Ulster, and your investigation seems to bear me out.

"Is it not strange the commercial importance of the apple never dawned on the shrewd farmers there until the eighties? My late father often told me that in 1839 he accompanied his father's men to Belfast market with three loads of apples chiefly Fox Whelps, S. & W. Eves, Sam Montgomery's, &c., and these, with perhaps a few of such kinds as Barren Hills, Yorkshire and Northern Greens, Sugar Sweets, Lord Nelsons, and the like, were the main varieties to be found till the eighties. The evolution was slow for those fifty or so years, but has it really been in a sense any faster during the last twenty-five?"

Perpetual Flowering Carnations

For the Greenhouse or Open Border.

Write at once for full particulars of these glorious plants. :: :: :: ::

Special Collections, *in bud*, from 15/- per dozen; will make a grand display. :: ::

One dozen (*extra good*) in 3 inch pots, 7/6.

YOUNG & CO. HATHERLEY, CHELTENHAM

Read Taudevin's Cultural Treatise.

PEA TRAINERS

The 'PARAGON'

(PATENT)

SINCE their introduction some few years ago these Trainers have been steadily gaining in public favour. A real boon to Gardeners. Simple, effective and durable; giving ample support and keeping the growing peas in neat straight lines. Do not harbour insects or pollute the soil.

Made 4 ft., 5 ft. and 6 ft. high, and sent out in sets complete ready for putting up, at from 8/6 per set upward. Write for price leaflet.

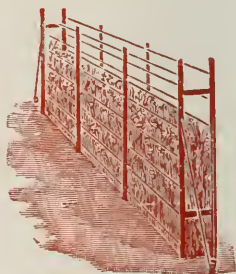
A Special Width made for Sweet Pea

WHAT USERS SAY:—

"Lady E. is much pleased with your Paragon Pea Trainers, which are most useful and satisfactory."—GOREY.

"I am delighted with your Pea Trainers. Please send me another set."—DUNDALK. Supplied through Seedsmen, Ironmongers, &c. or sent carriage paid from the patentees—

THE PARAGON PEA TRAINER CO., Bridge St., Banbridge, Co. Down



THOMPSON & MORGAN'S FAR-FAMED SEEDS

Revised CATALOGUE for 1914 free on application.

The high quality of our FLOWER SEEDS is now universally recognised, and our CATALOGUE—really a book of reference on hardy flowers—describes nearly 3,000 different kinds, many of them not obtainable elsewhere.

Our VEGETABLE SEEDS are of the finest selected strains, of the best quality, and tested for germination, at prices that defy competition for first-class seeds.

Trial Order Solicited.

THOMPSON & MORGAN, Seed Establishment and Hardy Plant Nurseries, IPSWICH

If you FUMIGATE OR SPRAY
Do it Effectively and Use

NICOTICIDE

Fumigant

	Feet	Each	
1 pint for	40,000	15/-	Carriage Paid
2 pint for	20,000	7/6	
6 oz. for	12,000	4/6	
4 oz. for	8,000	3/-	
2 oz. for	4,000	1/8	



NICOTICIDE FUMIGATORS, 1/- each for 5,000 cubic feet
NICOTICIDE

PLANT SPRAY

is very effective where it is not convenient to fumigate. We advise you to try it. It will also be useful as a Winter Dressing for Peaches, &c.
1 pint 12/-; Pint, 2/-; quart, 3/6; 1/2 gall., 5/-; gallon, 10/-.
Carriage Paid. Ask your Seedsmen for it.

LAWN SAND

entirely eradicates Daisies, Weeds, Moss, &c., besides stimulating the Grass.
28 lbs. will dress 100 sq. yds. 6d., 1s., and 2s. 6d. Tins;
1/2 cwt., 6s.; 1/4 cwt., 11s.; 1 cwt., 20s. Carriage Paid.

WORM POWDER

a certain remedy for removing Worms and clearing Worm Casts.
Use 1 lb. to the sq. yd. Simply sprinkle fairly thickly on the Grass and water copiously.
14 lbs. 1/2 cwt. 1 cwt. 1 cwt. 5 cwt. 1 ton. 2 ton.
3/- 5 7/6 12/6 £3 £5 10 £10 10
Use also COW'S TOBACCO POWDER & QUASSIA EXTRACT
Ask your Seedsmen for the above and refuse all imitations
HUNTER & GOW, Ltd. 31 Thomas Street, LIVERPOOL

THE CHEAPEST INSECTICIDE OF THE DAY

"NIQUAS"

(NON-POISONOUS)

IMPROVED

A Concentrated Extract of Quassia, combined with other valuable ingredients, forming a cheap, safe, and effective Insecticide for syringing and dipping. It destroys all Insect Pests infesting Trees and Plants, whilst no possible injury to vegetation can result from its use.
It can be applied with syringe or pump, or used for dipping.

PRICES—Half-pint, 1/-; pint, 1/6; quart, 2/6; half-gallon, 4/-;
gallon, 7/6; five gallons, 25/-; ten gallons, 45/-
1 gallon sufficient for 80 gallons of water.

STANDEN'S MANURE

(Established over 35 Years)

Exceeds all others in General Fertilising Properties and Staying Powers

Analysis on Application

Sold in Tins, 1/-, 2/6, 5/6 each; and in Kegs, well secured, to prevent loss through exposure, 28 lbs., 8/6; 56 lbs., 13/6; 112 lbs., 22/6

CORRY'S SPECIAL

Chrysanthemum Manure

Sold in Tins, 1/-, 2/6, 5/6, and Bags, 1/2 cwt., 10/6; 1 cwt., 18/-;
1 cwt., 32/-

For Fumigating in Greenhouses.

"LETHORION"

Improved Metal Cones

Registered No. 62,697

To destroy Insect Pests. The Candle attached to each Cone only needs lighting, and there is no further trouble. They are most efficacious.

No. 1. For frames and "leant-to's" up to 1,000 cubic feet. Price, 6d. each.

No. 2. For small greenhouses up to 1,500 cubic feet. Price, 8d. each.

No. 3. For a well secured house of 2,000 to 2,500 cubic feet. Price, 1/- each.

Fowler's Lawn Sand

This preparation is for destroying Daisies and other weeds on lawns, and at the same time stimulating the growth of the grass. If one tin is tried as a sample, its value will be at once appreciated. Sales are largely increasing.

Tins, 1/-, 2/6, and 5/- each; Kegs, 1/2 cwt., 8/6; 1 cwt., 16/-;
1 cwt., 30/-

ELLIOTT'S

'Summer Cloud' Shading

Registered Trade Mark No. 14,029.

(The only genuine original and improved article)

For Greenhouses. A pleasant green shade is given to the glass.
In packets, 1/- for 100 feet of glass, and 2/6 each for 300 feet.

Sole Manufacturers:

CORRY & CO., Ltd.

LONDON

SOLD BY ALL NURSERYMEN AND SEEDSMEN

THOMSON'S
MANURES
FOR
VINES PLANTS & VEGETABLES

PERFECT PLANT FOODS.
THE RESULT OF MANY YEARS' PRACTICAL
EXPERIENCE IN GARDENING.
USED ALL OVER THE WORLD.
SOLD BY SEEDSMEN & NURSERYMEN
EVERYWHERE

SOLE MANAGERS
THOMSON & SONS, LTD.
RAVENSHEAD, LONDON
E.C. 4

Irish Show Fixtures for 1914.

THIS list is intended to assist societies in selecting dates for their shows by indicating the arrangements which have already been made and preventing the clashing of show dates.

Secretaries will greatly oblige by sending the earliest possible intimation of their fixtures and of any change which takes place in their arrangements.

July	10	R. H. S. I., Summer Show, Lord Iveagh's Grounds, Dublin.
"	15	Kingstown Horticultural Society.
"	15	Lucan, Saggart and Clondalkin Show. Hon. Sec., Mrs. R. Shackleton.
"	18	Terenure and District Horticultural Society, Terenure, Dublin. Hon. Sec., A. Phipps, Esq., St. Ann's, Kimmage Road, Dublin.
"	23	Fethard Flower and Industrial Society's Show, Lakefield, Fethard. Hon. Sec., Rev. R. C. Patten.
"	29	Stillorgan and Foxrock Horticultural Society, at The Paddock, Leopards-town.
"	30	Killarney Flower and Industrial Society, Killarney. Hon. Sec., J. Henry, Esq., Danesfort Cottage, Killarney.
"	30	Co. Clare Horticultural Society, Ennis. Summer Show, Ennis. Hon. Sec., Rev. R. Scott, The Manse, Ennis, Co. Clare.

Aug.	5	Portumna Horticultural and Industrial Show. Hon. Sec., Rev. J. Griffin, Clonturbert Rectory, Ballinasloe.
"	5	Warrenpoint Flower Show. Hon. Sec., Dr. George W. Connor, The Cottage, Warrenpoint, Co. Down.
"	13	Co. Galway Horticultural Show, Ballinasloe. Hon. Sec., Miss O'Shaughnessy, Birch Grove, Ballinasloe.
"	15	Naas District Horticultural Society, Naas. Hon. Sec., Dr. O'Donel Browne, Gortnagrena, Naas.
"	25	R. H. S. I., Autumn Show, Lord Iveagh's Grounds, Dublin.
Sept.	3	Kilkenny Horticultural Society, St. James's Park, Kilkenny. Hon. Sec., Miss F. E. Butler, Lavistown House.
Oct.	1	Co. Clare Horticultural Society Ennis—Fruit and Farm Produce.

Catalogues.

ORCHIDS, from Messrs. Charlesworth & Co., is a most sumptuous and large catalogue. The frontispiece is a fine illustration of their magnificent group of Orchids shown at the last International Show, for which they were awarded the special cup given by Sir G. Holford for the best trade group of Orchids. Hayward's Heath is now known as the home of many new and interesting hybrids.

Smith's "Perfect"

Patent Powder

WEED KILLER

MARVELLOUS INVENTION

MOST EFFECTIVE

Nothing like it ever seen before Soluble in Cold Water. All Tins Free. No Return Empties

4 Tins when mixed with water will cover about 100 square yards.

1 Tin, sufficient to make	25 gallons	£0 1 9	
4 Tins	100 "	0 6 6	
8 Tins	200 "	0 12 6	Box 3d. extra
12 Tins	300 "	0 17 0	4d. "
20 Tins	500 "	1 7 0	6d. "
40 Tins	1,000 "	2 8 0	1s. "

Carriage Paid on 8 Tins and upwards to Stations in Ireland.

SMITH'S LIQUID WEED KILLER

One gallon to make 25 gallons for use

1 gallon	1 9	6 gallons	9 6	16 gallons	1 2 0
2 "	3 6	8 "	12 6	18 "	1 5 0
3 "	5 0	10 "	14 0	20 "	1 7 0
4 "	6 6	12 "	17 0	40 "	2 8 0
5 "	8 0				

Carriage Paid on 8 gallons and upwards.

Gallons when mixed will cover an area of about 400 square yards.

	Double Strength (1 to 50)		PRICES —	
1 gallon	3 6	5 gallons	13 6	16 gallons 38 0
2 "	6 6	6 "	16 0	20 " 46 0
3 "	9 3	8 "	21 0	40 " 88 0
4 "	11 6	10 "	25 0	

Carriage Paid on 4 gallons & upwards. Drums and Casks charged extra, but full price allowed when returned in good condition, carriage paid

IRISH AGENT—

NOTICE. These Preparations are Poisonous. Sole Proprietors, MARK SMITH, Ltd.

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The Best and Most Reliable

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PERPETUAL CARNATIONS. 175 varieties. Ask for Illustrated Catalogue. Full particulars. Post Free. Healthy Guernsey Plants, in small pots, from 4/- per doz., carriage paid. Can be planted outside. Patronised by Royalty.

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Little's Weed Destroyers



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WEEDS, - -
MOSSES, &c.,**

On Carriage Drives,
Gravel Paths.

Double the strength of
most Weed Killers.

1 gallon to 50 gallons
water.

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Powder Weed Killer

Per 1/9 Tin,
To make 25 Gallons.

Saves Trouble and
Expense of Returning
Packages.



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At lowest possible
Prices



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size 6 ft. by 4 ft. Best materials, painted two
coats, glazed with 21 oz. glass, ready for use.
PRICE 30/- packed free on Boat.

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My strain is now well known for its erect flower stems and large shapely blooms, and has been exhibited at most of the principal shows for the last 13 years. The colours include white, yellow, crimson, orange, rose, pink, salmon, flesh, amber and blush, in the singles, and the same colours in the doubles with the addition of scarlet, picotee, red, bronze, magenta, apricot, and cream. Strong growing plants now ready.

Singles, 2/6, 3/-, 5/-, 10/-, & 20/- per doz.
Doubles, 3/-, 4/-, 6/-, 15/- & 25/- ,,

For choice named varieties send a
card for my 30 page illustrated
list, also list of hardy Perennials

A. L. I. GWILLIM

BEGONIA SPECIALIST

SIDCUP

KENT

Dublin Wholesale Markets.

VEGETABLES, cut flowers, flowering plants, and bedding subjects for summer display in suburban gardens have been the leading features of the markets for the past month.

With the present dry, warm spell of weather upon us, and the scarcity and exorbitant prices of fruit, there is a great run on rhubarb, with the result that this seasonable and wholesome vegetable is commanding a most profitable return.

There has been an active demand for spring cabbages, and for choice stuff excellent prices have been obtained, whilst secondary qualities were disposed of at moderate figures. Seakale, spinach, lettuce, and radishes are arriving in increasing quantities, and sprouts and artichokes are now finished. Broccoli is commanding a ready sale at reduced prices. Samples of peas, French beans, and potatoes from the Canary Isles are going at fancy prices, but the demand for them is not great. Asparagus is becoming more plentiful. All ordinary vegetables in season are plentiful, but roots are getting scarcer.

Irish apples are practically finished, and they have not been conspicuous in the markets for the past month, whilst American supplies are now dwindling down to some small consignments. The first shipments of Australian and Tasmanian apples are to hand, and are in first-rate condition, the most attractive variety being Jonathan. The Australian apple crop is reported to be a very good one this season, and some fine fruits are expected to arrive. This source of supply will tide us over the scarce season until the coming season's fruit is in. Forced strawberries were to be seen in very limited quantities, and were eagerly bought up at fancy prices. This luxury, however, was well supplied during Punchestown week, and was easily disposed of.

The past month has been an exceptionally good one for the flower trade, and the supply has been well kept up right through. The Easter

trade in this department was the busiest, and the subjects most in demand were Arums, Tulips, Narcissi, Lily of the Valley, Anemones, and White Stocks. This was also a busy week in the plant section, flowering subjects were most in demand, and they include white and coloured Azaleas, Cinerarias, Genistas, Hyacinths, Marguerites, Scrizanthus, Spiræas, &c. Ferns in quantity and foliage subjects were much sought for. Violets are nearly finished for this season, whilst Carnations and Roses show a slight increase.

The following is a price list for the month:—

		FRUIT.		From		To	
				s.	d.	s.	d.
Apples—							
American	per barrel			28	0	32	0
Tasmanian							
(Jonathan)	per box			15	6	17	6
Australian (New York Pippin)	per box			16	0	17	0

		VEGETABLES.		From		To	
				s.	d.	s.	d.
Cabbage (York)	per large load	14	0	19	0		
" "	per small load	6	0	12	0		
Carrots	per doz. bunches	1	4	1	8		
Cauliflowers	per flasket (31)	1	3	2	4		
Lettuce	per doz.	0	4	0	8		
Leeks	per bunch	0	5	0	10		
Seallions	per bunch	0	4	0	8		
Seakale	per doz.	1	0	1	4		
Peas	per lb.	1	1	1	3		
Beans (French)	per lb.	0	9	1	0		
Turnips (White)	per bunch	0	3	0	6		
Potatoes (Canary)	per cwt.	16	0				
Spinach	per float	0	6	0	8		
Rhubarb	per doz. bunches	1	6	3	6		
Mint	per doz. bunches	0	4	0	8		
Cucumbers	per doz.	3	6	4	0		
Strawberries	per lb.	8	0	10	0		

		FLOWERS.		From		To	
				s.	d.	s.	d.
Arum Lilies	per doz.	2	4	2	6		
Narcissi (Emperor)	per doz. bunches	1	3	1	6		
Anemones	per doz. bunches	0	10	1	4		
" (blue)	per bunch	0	3	0	4		
Roses (Maréchal Niel)	per doz.	2	0	2	6		
Tulips	per doz. bunches	0	10	1	2		
Carnations	per doz.	2	0	2	6		
Gardenias	per box	1	0				
Spiræas	per pot	0	9	1	6		
Azaleas	per pot	1	6	2	6		

J. D.



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Protects your Seeds and Seedlings and Garden Beds from Slugs.
Protects your new sown Grass Seed from Birds.
Protects Garden Beds from Cats, Rats and Mice.

Put a little round every Seedling and Plant.
Put a little in every Seed Drill. Sprinkle a little over every bed before digging over and bedding out.

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from all Stores, Chemists,
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DESIGNING, Laying out and Planting of New and Renovating of Old Gardens. The Making and Planting of Rock Gardens, Rockeries, Water and Bog Gardens, and Pergolas a Speciality.

Plans Prepared. Estimates Free.

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SPECIAL POTS of all descriptions. Bulb Bowls and Fern Pans from 2d. each.
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Rose Trainers, Umbrellas, Trellis for Walls and Lawns, Seats, Arbours, Tubs, Arches . . . Silver Medal International Exhibition, 1912. Illustrated List on application.

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TRAINING IN—

Agriculture, Forestry, Horticulture
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Persons who desire to attend any of the Courses in the above-mentioned subjects, to be provided by the Department during the year 1914-15, should apply without delay for prospectuses, &c., to

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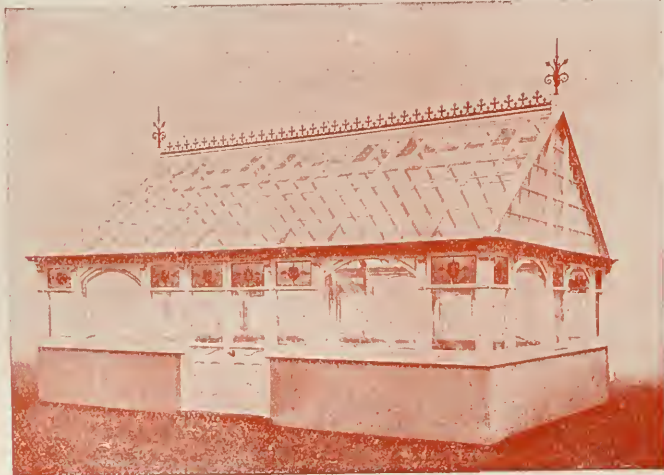
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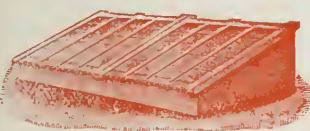
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QUICK FILLING DEVICE TO SPRAYING ATTACHMENT

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Barrel, 16 X 1 in., 96 18 X 1 1/2 in., 126 each.
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Motor Mowers, Lawn Sweepers, Garden Rollers, Edge
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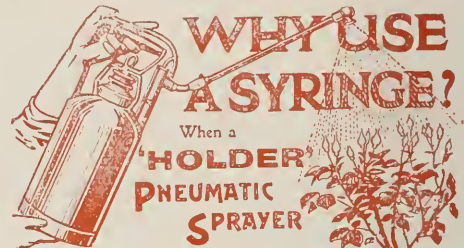
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SAVES WEARY WEEDING.

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1/-	tin for 12 galls. solution	} Free Tins and Cases.
1/6	" 25 "	
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1/2	gallon	- 2/-	- drum free
1	"	- 3/6	- " 9d. extra
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Works—TOTTENHAM.

I READ!!

on page 562 of "The Gardener," S.P. number, Jan, 31, 1914, the last words of Mr. Victor Hamel's letter: "I found MACKERETH'S SWEET PEA MANURE very good indeed." On page 561 there was a portrait of Mr. Victor Hamel, "the boy champion of New Zealand" and some of his cups (5 trophies and two medals).

Mr. G. C. Holder, of Porirua, N. Z., wrote me, Dec., 1913: "Have only shown at one large show this season, that of the New Zealand Society, held at Wellington last week, where I won the three classes in which I entered, i.e.—the 18 vases trophy, value 25 guineas; and the New Zealand Championship, 12 vases; 30 guineas trophy both challenge trophies—so that with the usual mixture of soil and Mackereth's 'persuader,' I felt rather pleased."

I MAINTAIN MY SP. S. P. MANURE PUTS THE FINISHING TOUCHES ON!

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A post card commands my list of special fertilizers, all Carriage Paid, for Roses, Tomatoes, Vines, Lawns, Fruit Trees, &c., &c.

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Recent awards seven Gold Medals, nine
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Motor Lawn Mowers made in various sizes

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THE REASON WHY customers come to us for Glasshouses and Heating Apparatus is because they know they will get the **best value for the least possible expenditure.** A few of our customers in Ireland include the Duke of Leinster, the Right Hon. Chief Baron Palles, The Marquess Conyngham, The Marquesses of Headfort, Londonderry; Earl Fitzwilliam, the Earls of Donoughmore, Dunraven, Erne, Longford, Listowel, Rosse, Aberdeen; Lords Ardilaun, Barrymore, Castletown, Cloncurry, Dunleath, Farnham; Lady Maurice FitzGerald; Colonel the Hon. C. F. Crichton. H. P. Goodbody, Esq., &c., &c.

LONDON OFFICE:
BELGRAVIA CHAMBERS
VICTORIA STREET
WESTMINSTER, S.W.

ERECTED FOR THE RT. HON. THE EARL OF ABERDEEN, VICE REGAL LODGE, DUBLIN.
(Per H. M. Commissioners of Public Works).

If you have a garden you will want

"ABOL"

INSECTICIDE NON-POISONOUS

The World's Best Pest Destroyer.

The one never failing remedy for insects and diseases in gardens and greenhouses. Safe, certain, and reliable. Unequalled for MILDEW ON ROSES and other plants. Used at Royal Gardens, Kew, Hampton Court and at White City.

$\frac{1}{2}$ pt., 1/-; pt., 1/6; qt., 2/6; $\frac{1}{2}$ gall., 4/-; gall., 7/6.

"ABOL" FERTILIZER

Very highly concentrated, and much more Economical and Efficacious than any other. Imparts a wonderful and lasting benefit to all vegetation—is quick and sure in effect.

Tins, 6d. and 1/-, postage 6d. extra; 7 lbs. 2 6; 14 lbs., 4 6. Bags, 28 lbs. 7 6; 56 lbs. 12 -; 112 lbs. 18 -;

PATENT SYRINGES

Specially Recommended by

THE NATIONAL ROSE SOCIETY.



Give just the right spray for applying washes efficiently and with absolute economy.

Vary spray from fine to medium or coarse, as desired.

Now fitted with extra rings on the barrel to take the spare caps—thus the "Abol" is as perfect as it is possible for a sprayer to be.

No. 4 (1 x 14), 8/6; No. 5 (1 x 20), 10/6.
No. 6 (1 $\frac{1}{2}$ x 20), 14/6. Bend, 1/6 extra

A 32 pp. Treatise on Garden Pests and Diseases, fully illustrated, will be sent to any reader

GRATIS AND POST FREE.

OF ALL NURSEYMEN
IRONMONGERS, &c. :

or Sole Proprs. and Mfrs.

E. A. WHITE, Ltd.
9 Beltring, Paddock Wood, Kent.

"ABOL" WORMKILLER

The very best for earthworms on Putting and Bowling Greens, Garden Tennis and Croquet Lawns, NON-POISONOUS.

Tin, 1 -; post 6d. extra. 7 lbs. 1 9; 14 lbs. 3 -; 28 lbs., 5/-; 56 lbs., 7 6; 112 lbs., 12 -; 5 cwt., £2 17 6; 10 cwt. £3 15; 1 ton £7.

EDMONDSON'S PRIZE BEE HIVES

The C.D.B. (With latest ::
improvements)

The TWO-CRATE

The No. 1

Bar Frames, Sections, Comb Found-
ation, and all Beekeepers' Appliances

Illustrated Price List Free :: ::



EDMONDSON BROS.
10 Dame Street, DUBLIN.

Royal Horticultural Society of Ireland.

THE monthly meeting of the council was held at the Society's offices, 5 Molesworth Street, Dublin, on the 8th ult. Present:—R. T. Harris, LL.D.; Alderman Bewley, J. Wylie-Henderson, W. J. Mitchison, R. Anderson, J. J. McDonough, Sir Frederick W. Moore, D. L. Ramsay, J.P., and H. P. Goodbody, with Mr. E. D'Olier presiding. Regrets at inability to attend were received from Lady Albreda Bourke, James Robertson, J.P., A. Campbell and E. H. Walpole. A balance sheet of the Spring Show was submitted and approved, and accounts, including the prize money, ordered for payment. Arrangements were made for drafting the Spring Show schedule for 1915. Mrs. Brown-Clayton, Brown's Hill, Carlow, proposed by Mr. Jocelyn H. Thomas, and Mr. W. E. Trevithick (practical), proposed by the Marquis of Headfort, were elected members of the society. Mr. Joseph Meade, Old Connaught, Bray, was awarded a cultural certificate and the bronze medal of the society for fine specimens of Iris Susiana, the Mourning Iris.

National Sweet Pea Society.

IN consequence of the political unrest in Belfast, the Irish Rose and Floral Society have decided to abandon their show for this year, and owing to the same cause the National Sweet Pea Society will not be able to hold a provincial show there this year.

Schedules of the London Show may be had by applying to the Secretary, Henry D. Tigwell, Greenford, Middlesex.

"Sanitas Powder."

It is quite amazing to note the number of gardeners who are now using "Sanitas Powder" to protect their hobbies.

The value of "Sanitas Powder" was only casually referred to the first time in 1911 in Mr. W. P. Wright's well known book "The Garden Week by Week." Since then fresh evidence of its value seems to be continually cropping up, proving its efficacy against not only slugs and snails, but birds, cats, and insect pests of all kinds, and it is being used not only as a surface dressing for beds and protection for grass seed, but actually for digging into the bed when making up, and for putting into the bottom of every drill when planting out.

The makers have just issued a new leaflet describing its many applications.

Catalogues.

MESSRS. E. A. WHITE, Beltring, Paddock Wood, Kent, send a small booklet entitled "In a Perfect Garden." It is a popular but practical treatise on the eradication of garden and greenhouse pests, giving a good description of how to get rid of those which attack Roses, Carnations, &c. The booklet should prove a useful one to growers, as it is reliable and has been brought up-to-date; it may be obtained post free on application to Messrs. E. A. White.

"SUMMER BEDDING PLANTS," from MESSRS. WM. WATSON & SONS, Clontarf Nurseries, Dublin, is a small catalogue giving good lists of Geraniums,

Perpetual Flowering Carnations

For the Greenhouse or Open Border.

Write at once for full particulars of these glorious plants. :: :: :: :: ::

Special Collections, *in bud*, from 15/- per dozen; will make a grand display. :: ::

One dozen (*extra good*) in 3 inch pots, 7/6.

YOUNG & CO. HATHERLEY, CHELTENHAM

Read Taudevin's Cultural Treatise.

PEA TRAINERS

The 'PARAGON'

(PATENT)

SINCE their introduction some few years ago these Trainers have been steadily gaining in public favour. A real boon to Gardeners. Simple, effective and durable; giving ample support and keeping the growing peas in neat straight lines. Do not harbour insects or pollute the soil.

Made 4 ft., 5 ft. and 6 ft. high, and sent out in sets complete ready for putting up, at from 8/6 per set upward. Write for price leaflet.

A Special Width made for Sweet Pea

WHAT USERS SAY:—

"Lady E. is much pleased with your Paragon Pea Trainers, which are most useful and satisfactory."—GOREY.

"I am delighted with your Pea Trainers. Please send me another set."—DUNDALK. Supplied through Seedsmen, Ironmongers, &c. or sent carriage paid from the patentees.



The PARAGON PEA TRAINER CO., Bridge St., Banbridge, Co. Down

Thompson & Morgan's far-famed Seeds & Plants

Revised CATALOGUES for 1914 free on application.

The high quality of our FLOWER AND VEGETABLE SEEDS is now universally recognised, and our CATALOGUE—really a book of reference on hardy flowers—describes over 3,000 different kinds, many of them not obtainable elsewhere.

Our HARDY PLANTS, mostly Alpine and Herbaceous, are strong, fibrous rooted stuff, in all the newest and best varieties, at moderate prices

Trial Order Solicited.

THOMPSON & MORGAN, Seed Establishment and Hardy Plant Nurseries, **IPSWICH**

If you FUMIGATE OR SPRAY
Do it Effectively and Use

NICOTICIDE

Fumigant

1 pint for
½ pint for
6 oz. for
4 oz. for
2 oz. for



Feet Each
40,000 15/-
20,000 7/6
12,000 4/6
8,000 3/-
4,000 1/8

Carriage
Paid

NICOTICIDE FUMIGATORS, 1/- each for 5,000 cubic feet
NICOTICIDE

PLANT SPRAY

is very effective where it is not convenient to fumigate. We advise you to try it. It will also be useful as a Winter Dressing for Peaches, &c.
½ pint 12/-; Pint, 2/-; quart 3/6; ½ gall., 5/-; gallon 10/-.
Carriage Paid. Ask your Seedsmen for it.

LAWN SAND

entirely eradicates Daisies, Weeds, &c., besides stimulating the Grass.

28 lbs. will dress 100 sq. yds. 6d., 1s., and 2s. 6d. Tins:
½ cwt., 6s.; ¼ cwt., 11s.; 1 cwt., 20s. Carriage Paid.

WORM POWDER

a certain remedy for removing Worms and clearing Worm Casts. Use ½ lb. to the sq. yd. Simply sprinkle fairly thickly on the Grass and water copiously.

14 lbs ¼ cwt. 1 cwt. ½ cwt. 5 cwt. 1 ton. 2 ton.
3/- 5 7/6 12/6 £3 £5 10 £10 10

Use also COW'S TOBACCO POWDER & QUASSIA EXTRACT

Ask your Seedsmen for the above and refuse all imitations
HUNTER & GOW, Ltd. 31 Thomas Street, LIVERPOOL

THE CHEAPEST INSECTICIDE OF THE DAY

"NIQUAS"

(NON-POISONOUS)

IMPROVED

A Concentrated Extract of Quassia, combined with other valuable ingredients, forming a cheap, safe, and effective Insecticide for syringing and dipping. It destroys all Insect Pests infesting Trees and Plants, whilst no possible injury to vegetation can result from its use. It can be applied with syringe or pump, or used for dipping.

PRICES—Half-pint, 1/-; pint, 1/6; quart, 2/6; half-gallon, 4/-; gallon, 7/6; five gallons, 25/-; ten gallons, 45/-
1 gallon sufficient for 80 gallons of water.

STANDEN'S MANURE

(Established over 35 Years)

Exceeds all others in General Fertilising Properties and Staying Powers

Analysis on Application

Sold in Tins, 1/-, 2/6, 5/6 each; and in Kegs, well secured, to prevent loss through exposure, 28 lbs., 8/6; 56 lbs., 13/6; 112 lbs., 22/6

CORRY'S SPECIAL Chrysanthemum Manure

Sold in Tins, 1/-, 2/6, 5/6, and Bags, ½ cwt., 10/6; ¼ cwt., 18/-;
1 cwt., 32/-

For Fumigating in Greenhouses.

"LETHORION"

Improved Metal Cones

Registered No. 62,697

To destroy Insect Pests. The Candle attached to each Cone only needs lighting, and there is no further trouble. They are most efficacious.

No. 1. For frames and "leant-to's" up to 1,000 cubic feet. Price, 6d. each.

No. 2. For small greenhouses up to 1,500 cubic feet. Price, 8d. each.

No. 3. For a well secured house of 2,000 to 2,500 cubic feet. Price, 1/- each.

Fowler's Lawn Sand

This preparation is for destroying Daisies and other weeds on lawns, and at the same time stimulating the growth of the grass. If one tin is tried as a sample, its value will be at once appreciated. Sales are largely increasing.

Tins, 1/-, 2/6, and 5/- each; Kegs, ½ cwt., 8/6; ¼ cwt., 16/-;
1 cwt., 30/-

ELLIOTT'S

'Summer Cloud' Shading

Registered Trade Mark No. 14,620.

(The only genuine original and improved article)

For Greenhouses. A pleasant green shade is given to the glass. In packets, 1/- for 100 feet of glass, and 2/6 each for 300 feet.

Sole Manufacturers:

CORRY & CO., Ltd.

LONDON

SOLD BY ALL NURSERYMEN AND SEEDSMEN

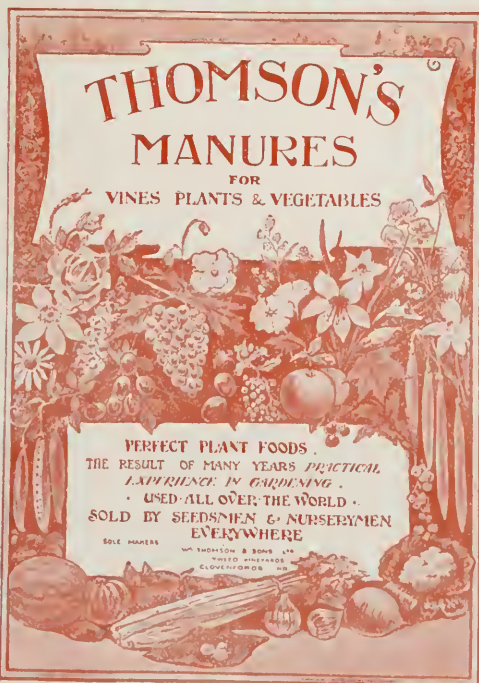
THOMSON'S MANURES

FOR
VINES PLANTS & VEGETABLES

PERFECT PLANT FOODS.
THE RESULT OF MANY YEARS PRACTICAL
EXPERIENCE IN GARDENING.
USED ALL OVER THE WORLD.
SOLD BY SEEDSMEN & NURSERYMEN
EVERYWHERE

SOLE MANUFACTURERS

H. THOMSON & SONS, LTD.
10, MARK LANE, LONDON, E.C.



Begonias, Violas, Antirrhinums and many annuals and plants which make a good display during the summer months. Towards the end are to be found vegetable plants and popular climbers

"GUARANTEED GARDENING GOODS," from THE GROWERS' SUPPLY ASSOCIATION, LTD., Boulton Works, The Crescent, South Road, Hockley, Birmingham.—This is an illustrated catalogue of appliances, tools, sprayers, garden hoses, &c., useful to gardeners and growers.

Irish Show Fixtures for 1914.

THIS list is intended to assist societies in selecting dates for their shows by indicating the arrangements which have already been made and preventing the clashing of show dates.

Secretaries will greatly oblige by sending the earliest possible intimation of their fixtures and of any change which takes place in their arrangements.

July	10	R. H. S. I., Summer Show, Lord Iveagh's Grounds, Dublin.
"	15	Kingstown Horticultural Society.
"	15	Lucan, Saggart and Clondalkin Show. Hon. Sec., Mrs. R. Shackleton.
"	18	Howth Gardening and Home Industries Society's Show, at Howth Castle.
"	18	Terenure and District Horticultural Society, Terenure, Dublin. Hon. Sec., A. Phipps, Esq., St. Ann's, Kimmage Road, Dublin.

July	23	Fethard Flower and Industrial Society's Show, Lakelield, Fethard. Hon. Sec., Rev. R. C. Patten.
"	29	Stillorgan and Foxrock Horticultural Society, at The Paddock, Leopards-town.
"	30	Killarney Flower and Industrial Society, Killarney. Hon. Sec., J. Henry, Esq., Danesfort Cottage, Killarney.
"	30	Co. Clare Horticultural Society, Ennis. Summer Show, Ennis. Hon. Sec., Rev. R. Scott, The Manse, Ennis, Co. Clare.
Aug.	5	Portunna Horticultural and Industrial Show. Hon. Sec., Rev. J. Griffin, Clonturbert Rectory, Ballinasloe.
"	5	Warrenpoint Flower Show. Hon. Sec., Dr. George W. Connor, The Cottage, Warrenpoint, Co. Down.
"	13	Co. Galway Horticultural Show, Ballinasloe. Hon. Sec., Miss O'Shaughnessy, Birch Grove, Ballinasloe.
"	15	Naas District Horticultural Society, Naas. Hon. Sec., Dr. O'Donel Browne, Gortnagrena, Naas.
"	25	R. H. S. I., Autumn Show, Lord Iveagh's Grounds, Dublin.
Sept.	3	Kilkenny Horticultural Society, St. James's Park, Kilkenny. Hon. Sec., Miss F. E. Butler, Lavistown House.
Oct.	1	Co. Clare Horticultural Society Ennis—Fruit and Farm Produce.

Smith's "Perfect" Patent Powder

WEED KILLER

MARVELLOUS INVENTION

MOST EFFECTIVE

Nothing like it ever seen before Soluble in Cold Water. All Tins Free. No Return Empties

4 Tins when mixed with water will cover about 400 square yards.

TESTIMONY

ENNISCORTHY.

The Powder Weed Killer I got from you last month is the best I ever used.

GLENELLEN, MILTOWN

Your Weed Killer is the only one I ever tried that is any use. Yours never fails

—L. CREAGHE CREAGHE-HOWARD

1 Tin, sufficient to make	25 gallons	£0 1 9
4 Tins	100 "	0 6 6
8 Tins	200 "	0 12 6
12 Tins	300 "	0 17 0
20 Tins	500 "	1 7 0
40 Tins	1,000 "	2 8 0

Carriage Paid on 8 Tins and upwards to Stations in Ireland.

SMITH'S LIQUID WEED KILLER

One gallon to make 25 gallons for use

1 gallon	1 9	6 gallons	9 6	16 gallons	1 2 0
2 "	3 6	8 "	12 6	18 "	1 5 0
3 "	5 0	10 "	14 0	20 "	1 7 0
4 "	6 6	12 "	17 0	40 "	2 8 0
5 "	8 0				

Carriage Paid on 8 gallons and upwards.

Gallons when mixed will cover an area of about 400 square yards.

	Double Strength (1 to 50)	PRICES —	
1 gallon	3 6	5 gallons	13 6
2 "	6 6	6 "	16 0
3 "	9 3	8 "	21 0
4 "	11 6	10 "	25 0
		16 gallons	38 0
		20 "	46 0
		40 "	88 0

Carriage Paid on 4 gallons & upwards. Drums and Casks charged extra, but full price allowed when returned in good condition, carriage paid

IRISH AGENT—

NOTICE. These Preparations are Poisonous. Sole Proprietors, MARK SMITH, Ltd.

D. M. WATSON, M.P.S.,

Horticultural Chemist

61 South Great George's Street

DUBLIN

Telephone, 1971

Insecticides, Fungicides, Fumigants, Spraying Machines, &c.

Dublin Wholesale Markets.

THERE has been a marked activity during the past month in every section of the salesmen's stands, and this activity and briskness is much on the increase with the coming of the summer months and all that they mean to the markets in the way of seasonable fruits, flowers and vegetables. Home-grown vegetables and fruits, especially Cork asparagus and Gormanstown gooseberries, were well in evidence and they were cleared easily at firm prices. Attention may be called here, very properly, at the outset of the season to the marketing of gooseberries. It is quite apparent that in many cases they are packed indiscriminately and marketed indifferently in any size box or basket, irrespective of grade or selection, and with a fair sprinkling of leaves to boot. This tells much against their attractiveness, and certainly does not enhance their price. Chip baskets holding about four quarts of fruit look the neatest and most attractive, and these can be had in quantity at a very cheap rate.

Australian and Tasmanian apples, particularly the latter, continue to arrive in liberal quantities and in the usual first-rate condition. Arrivals from the Cape consist principally of grapes and pears in moderate supplies. Cherries from the

Holtzapffel's Garden Tools.

WALKING STICK PRUNING SAW.



17/6

each.

Postage
4d.

The finest Pruning Saw in the world.

"HARPOON" WEED EXTRACTOR.



10/6

Especially suitable for removing strong weeds from lawns, &c.

Catalogue of High-class Garden Tools post free (Department I.)

**HOLTZAPFFEL & Co., 53 Haymarket
LONDON, S.W.**



KILPEST

If you want a
BEAUTIFUL GARDEN
you must preserve your plants against all kinds of blight and garden pests.

ORDER

Awarded	"KILPEST"	Awarded
Gold		Gold
Medal.	TO-DAY	Medal.

The best insecticide on the Market—and is non-poisonous
"KILPEST" EXTERMINATES
Black and Green Fly Red Spider, Thrip, Gooseberry Caterpillar, Mildew and Aphis Pests, &c., on Plants, Flowers, or Foliage. It cannot harm anything but insect life, and the most delicate plant cannot be injured by its use
2 ozs. "Kilpest" makes 1 Gall. Insecticide.
Prices—Pint, 1/6; Quart, 2/9; Gall. 5/-; 1/2-gall. 8/-
Get a supply from your dealer to-day. If any difficulty is experienced in obtaining "Kilpest" send a post card to
**Sole Manufacturers
CLOUGH & FIRTH, Ltd.
BRIDGE MILLS, KNARESBOROUGH, YORKS.**



G. HAYWARD FRHS.

**CRYSTAL PALACE HORTICULTURAL WORKS
BROCKLEY ROAD, LONDON, S.E.**
**THE CHEAPEST AND BEST FIRM FOR
GREENHOUSES. SEND FOR LIST POST FREE.**




FROM £300 FROM £2150
ALL 21 OZ GLASS THROUGHOUT.
Makers of all kinds of Greenhouses, Garden Frames.
At lowest possible Prices



THIS TWO-LIGHT FRAME made to standard size 6 ft. by 4 ft. Best materials, painted two coats, glazed with 21 oz. glass, ready for use.
PRICE 30/- packed free on Boat.



HILL'S
GALVANISED IRON
**RUBBISH :: ::
DESTRUCTOR.**
(REGISTERED).

For Burning up all Garden Refuse and Rubbish wet or dry Feed at top, all kinds of Rubbish quickly reduced to ashes, than which there is nothing better as a Garden Fertiliser. :: ::

Outside Measurement at Base 24 in., Height, 41 in Weight 37 lbs

Price 15/- each, Carriage Paid

FRANCIS HILL
Belmont Row, BIRMINGHAM

41

24"

South of France are now on sale, packed in small baskets; while strawberries from the same source are arriving in direct consignments to salesmen. For choice Irish strawberries and tomatoes quick bidding is the rule, and handsome prices are obtained.

Vegetables, particularly cabbages and cauliflower, were largely supplied, and only for select stuff was there anything like a profitable price obtained. In fact for inferior lots a clearance was slowly effected. New potatoes from County Dublin, chiefly from Rush and Skerries, are making their appearance in small lots, but evidently up to the present buyers prefer the old to the new. Potatoes from Teneriffe in fair quantity and well graded have been in the markets all the month, but there has not been any great demand for them, nor is there likely to be so long as the old ones continue sound.

The following is a price list for the month:—

FRUIT.		From	To
		s. d.	s. d.
Apples—			
American	per barrel	24 0	30 0
Australian			
(Jonathan)	per box	18 6	—
Grapes (Gros			
Colmar)	per lb.	2 0	3 0
Strawberries	"	2 0	5 0
Gooseberries	per quart	0 5	0 7
Cherries	per basket	2 9	4 6
Tomatoes	per lb.	0 9	0 10
VEGETABLES.			
Cabbage (York)	per large load	9 0	14 0
Cauliflowers	per flasket	1 6	3 0
Cucumbers	per dozen	3 6	4 0
Lettuce	"	0 3	0 6
Leeks	per bunch	0 4	0 10
Beans (French)	per lb.	1 0	—
Peas	"	0 10	1 0
Potatoes (New)	"	0 3	0 5

VEGETABLES—con.

		From	To
		s. d.	s. d.
Radishes	per doz. bunches	1 0	1 6
Rhubarb	" "	1 6	2 9
Spinach	per float	0 6	0 10
Scallions	per bunch	0 5	0 10
FLOWERS.			
Arum Lilies	per dozen	2 4	3 0
Narcissus—			
(Pheasant's			
Eye)	per doz. bunches	1 6	3 0
Double white	per ½ doz. bunches	1 6	2 0
Roses	per dozen	1 6	2 6
Tulips (Clara			
Butt)	per bunch	2 6	3 0
Carnations			
(Malmaison)	per half dozen	1 0	1 6
Pyrethrums			
Double White	per doz. bunches	1 8	2 0
Pinks	per bunch	0 1	0 6
Pelargoniums			
(Fancy)	per pot	0 5	0 6
Rhodanthe	"	0 4	0 5
Spiraeas	"	1 0	2 0
White Stocks	"	0 4	—

J. D.

CATCH THE EYE



In last issue of this Journal 49% of the English Advertisements had pictures, while only 16% of the Irish Advertisements made use of this greatest factor in securing attention. No need to point the moral.

We get up Sketches and make all sorts of Illustration Blocks.

IRISH PHOTO ENGRAVING CO.
50 Middle Abbey Street — DUBLIN.
PHONE 413.

Largest Manufacturers

IN THE

United Kingdom

For Catalogue giving complete particulars of

Bentley's Weed Destroyers

Bentley's Daisy Killer

Bentley's Plant and Fruit

:: Tree Washes ::

Bentley's Fungicides and

:: Fumigants ::

Bentley's Fertilisers, &c.

.. Write to ..

Joseph Bentley, Limited

MANUFACTURING CHEMISTS

CHEMICAL
WORKS,

Barrow-on-Humber, HULL.



SLUGS SLUGS SLUGS



SANITAS POWDER will rid your Garden of Slugs, and protect your Seeds and Plants from all pests such as **Slugs, Worms, Rats, Mice, Sparrows, Cats, &c.**

Leaflet and Free Sample with instructions Free.
6d. and 1/- Tins and 12/6 per Cwt.
or all Chemists, Stores and Nurserymen.

THE SANITAS CO., Ltd.,
Limehouse, London, E.

Awarded Medal at Royal Horticultural
Exhibition, 1911.

Miscellaneous Section.

THE POPULARITY OF XL ALL SPECIALITIES increases every year. All gardeners proclaim that nothing equals these celebrated preparations.

XL ALL NICOTINE VAPORISING COMPOUND, the gardener's favourite Fumigant, both Liquid and cake.

XL ALL NICOTINE INSECTICIDE WASH for Syringing, Dipping, and Dressing Fruit Trees and Plants. Mealy Bug, Scale, &c., cannot exist where this is used.

XL ALL INSECTICIDE WASH B (*sine* Nicotine), best non-poisonous Wash on the market.

Other Preparations of great Renown are **XL ALL WEED KILLER**. Used once a year, no weeds can live.

XL ALL ROSE MANURE grows prize blooms. Use it now!

Don't forget to ask your Nurseryman or Seedsman for my small pink list.

G. H. RICHARDS, Manufacturer,
234 Borough High Street, London, S.E.

LANDSCAPE GARDENING

DESIGNING, Laying out and Planting of New and Renovating of Old Gardens. The Making and Planting of Rock Gardens, Rockeries, Water and Bog Gardens, and Pergolas a Speciality.

Plans Prepared. Estimates Free.

RICHARD C. McM. SMYTH, F.R.H.S.
Mount Henry Dalkey, Co. Dublin

SANKEY'S FAMOUS GARDEN POTS
The **BEST** and Cheapest.
State quantity of each also required and have "carriage paid" quotation ("carriage" frequently amounts to half value of goods), or write for Price List, free.
SPECIAL POTS of all descriptions. Bulb Bowls and Fern Pots from 26s. each.
RICHARD SANKEY & SON, LTD.
Bulwell Potteries, NOTTINGHAM.

PERPETUAL FLOWERING (AMERICAN) CARNATIONS.

I shall be pleased to send my 1914 catalogue to all interested in these Carnations. I grow 250,000 flowering plants, and my stock is in perfect condition.

INSPECTION INVITED

C. ENGELMANN, Saffron Walden, ESSEX

Books on Gardening, Vegetable Culture, Greenhouse Management, and all other subjects. Second hand at half prices. New 25% discount. **Catalogue, No. 992**, free. State wants. Books bought.

W. & G. FOYLE, 121 Charing Cross Rd., London.

IF YOU HAVE A GLASS ROOF THAT LEAKS, a Conservatory to repair, or any kind of glazing work to be done, **CARSON'S PLASTINE** will save money, time, worry and annoyance consequent on the use of ordinary putty, which cracks, crumbles, and decays. It saves the expense of constant renewals. Carson's Wood Preservative in green and brown, for Palings, Trellis Work, &c. The best paint for Greenhouses is "Vitrolite." Write for Catalogue. **CARSON'S, 22 Bachelor's Walk, Dublin.**

AUTO-SHREDS IS CERTAIN DEATH to Leaf-mining Maggots, Mealy Bug and all Pests infesting plants under glass, &c. Simple to use, no apparatus required. In Boxes to Fumigate 1,000 cubic feet, 6d.; 10,000 cubic feet, 3s. 6d. each. Obtained of Seedsmen and Florists; if unobtainable apply direct—

WM. DARLINGTON & SONS, Ltd.

Who esale Horticultural Sundriesmen,
HACKNEY, LONDON, N.E.

Trade Terms and Catalogue of Sundries upon receipt of business card



FIVE POUNDS for the best autochrome or coloured drawing of a **KELWAY BORDER**. **THREE POUNDS** second prize, **ONE POUND** third prize. Winning autochromes or drawings, and copyright, to become the property of Kelway & Son, whose decision will be final. To arrive carefully packed, by July 14th, addressed:—**KELWAY & SON, The Royal Horticulturists, Langport.**

"**GARDENS OF DELIGHT**," a most useful gardening book. Full information about Herbaceous Borders, and particularly the Kelway Border. Splendidly printed in colours with a number of beautiful colour plates. Edited and contributed to by James Kelway. Every amateur gardener should have this book. 1s. post free from **KELWAY & SON The Royal Horticulturists, Langport, Somerset.**

BIRDS SCARED.—Rotless Tanned Netting. Small mesh: very superior; as supplied by us to the Royal Gardens. Satisfaction or cash refunded. 100 x 1 yard, 3/9; 2 yards, 7/6; 3 yards, 11/3; 4 yards, 15/-; 50 x 6 yards, 11/3; 25 x 8 yards, 7/6; carriage paid. Any length and width supplied. **POTTER BROS. (Dept. T.), Shrewsbury. Estd. 58 years.**

LAWN MOWERS.—Nothing to equal them, only 12/6; Garden Rollers, 37/6; Seats, 8/6; Barrows, 14/6; Water Barrows, 20 gallon, 25/6; Garden Hose, 60 feet, 9/11. Get our free list and save money. **POTTER BROS. (Dept. T.), Shrewsbury.**

TENNIS COURT NETTING.—Rotless; Superior. Strong Tarred Top and Bottom Lines. 25 x 2 yards, 6/-; 3 yards, 7/-; 4 yards, 8/-; Tents, 22/-. Army Bell Tents, all complete, 37/6. Officers' Tents, 50/-. **POTTER BROS. (Dept. T.), Shrewsbury.**

Fethard Flower Show

WILL BE HELD AT

LAKEFIELD, FETHARD

(Two Miles from Station)

On THURSDAY, JULY 23rd, 1914

Over 30 Classes open to all Ireland
FOR VEGETABLES FRUIT AND FLOWERS

£10 Prize offered for Sweet Peas
12 SPRAYS OF 12 NAMED VARIETIES

£3 Prize offered for Carnations

Schedules from Hon. Secs.

Rev. R. C. PATTEN, Fethard Rectory, Co. Tipperary

J. G. O'BRIEN, Lakefield, Fethard, Co. Tipperary

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Including the Grand New Forcing Variety

LAXTON'S KING GEORGE V.

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Also **LAXTON'S THE EARL**

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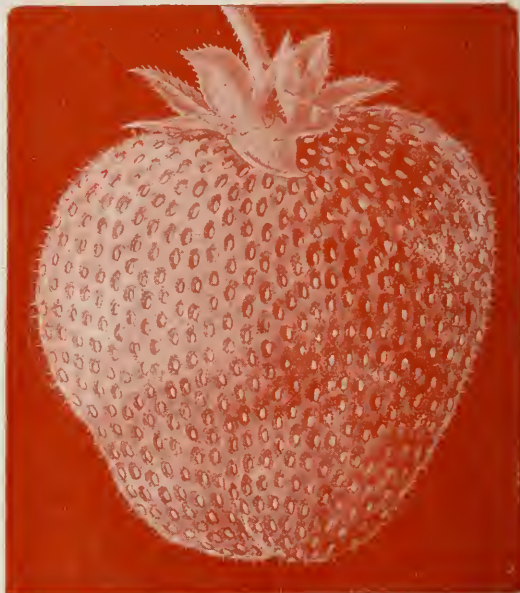
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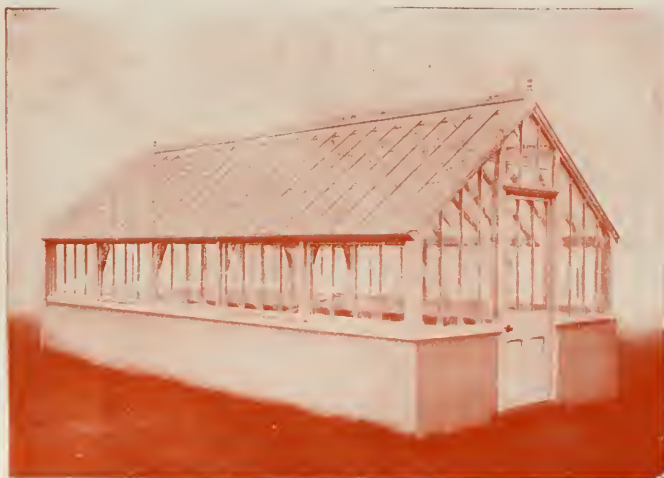
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Carnation, &c., House,
22 ft. by 11 ft. For
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Price includes Plant
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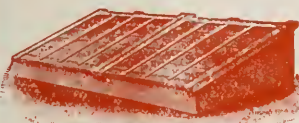
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In great variety always in Stock

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MODERN . GLASSHOUSES

Superior in Design ::
Material, Construction
and above all utility.

**WOOD LATH and
SCRIM BLINDS :**
IN EVERY VARIETY

For Shading CONSERVATORIES,
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Our Shadings are recommended by
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WINDOW GLASS

Polished Plate for Shop Windows. -
Horticultural Glass at Lowest Rates

DEATH TO THE WEEDS !

HOYTE'S WEED KILLER.

Strongly Recommended for the Destruction of Weeds, &c.

Price, 2s. per gallon; 5 gallons, 1s. 6d. per gallon;
10 gallons, 1s. 3d. per gallon; Original 40-gallon casks,
1s. per gallon.

**HOYTE & SON, The City of Dublin Drug Hall,
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THE 'REACHOVER' SPRAYING SYRINGE



PERFECTLY FULFILLS ALL THE PURPOSES

of a Spraying Syringe
And an Ordinary Syringe with Rose and Jet.

Will Spray from any Position—

Above, Beneath, Back, Front, or Either Side
QUICK FILLING DEVICE TO SPRAYING ATTACHMENT

Price Complete—

Barrel, 16 x 1 in., 96 18 x 1 in., 126 each.

CARRIAGE PAID. NO EXTRAS.

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**SYRINGES, SPRAYERS, AND OTHER
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**RANSOMES'
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The Best in the World



Possess improvements embodied
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**HAND POWER MACHINES, in all kinds
and sizes to suit every user.**

**HORSE AND PONY MACHINES, the best
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Motor Mowers, Lawn Sweepers, Garden Rollers, Edge
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For particulars apply for List No. 53.

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The oldest and most experienced firm in the Lawn Mower Trade

PHYTOPHILINE & VITIPHILINE

Non-Poisonous INSECTICIDES, free from Nicotine, Alcohol, Ether and Arsenic
Effective, Reliable, Economical, and Perfectly Harmless to the Plants and the Operator
THEREFORE

A BOON TO HORTICULTURISTS.

For Black and Green Aphis, Fly, Thrips, Scale, Caterpillars, American Blight, &c., USE PHYTOPHILINE.

For Red or Grey Spider, Mealy Bug, Fungi on Palms or Azaleas, Mildew or Rust on Roses, Chrysanthemums, Peaches, &c., USE VITIPHILINE.

Free sample on application, also prices and instructions for use from

CHARLESWORTH & CO., ORCHID SPECIALISTS, Haywards Heath
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Tug-o'-War, Children's
Races, Various Sports

Putting Competition

Best Irish Jig (Double)
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Open to Residents in Show
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LUCAN, SAGGART AND CLONDALKIN

FLOWER SHOW

WILL BE HELD IN THE

Grounds of Corkagh, Clondalkin

By kind permission of COL. FINLAY, D.L.

ON

Wednesday, 15th July, 1914

Show Opens at ONE p.m. and Closes at SIX p.m.

A conducted party will
visit the GORKAGH
GARDENS during the
afternoon, starting from the
Hon. Secretary's Tent at
4 o'clock.

AUCTION

of Flowers, Vegetables
and Home Produce
at 5 o'clock. :: ::

Refreshments on the Grounds.

ADMISSION, 6d. MOTORS, 1/-
CHILDREN, 3d.

Trains from Kingsbridge at 2, 3, and 4.

Stillorgan and Foxrock Horticultural Society

(AFFILIATED WITH THE ROYAL HORTICULTURAL SOCIETY OF IRELAND)

THE SIXTH ANNUAL SHOW

WILL BE HELD IN THE

Paddock of Leopardstown Race Course

On Wednesday 29th JULY, 1914

Challenge Cups and Valuable Prizes in Classes for Flowers, Fruit and Vegetables

SCHEDULE OF PRIZES AND FULL
PARTICULARS CAN BE HAD FROM

The Secretary

C.K. FOWLER

Carrickmines, Co. Dublin

North Kildare Horticultural Society

SHOW OF FLOWERS, VEGETABLES, FRUIT — AND HOME INDUSTRIES —

Will be held by kind permission of H. J. B. Clements, Esq., D.L.

AT KILLADOON, CELBRIDGE

On Wednesday, 22nd July, 1914

All Exhibits must reach Show Ground, and be staged by 11 a.m.
Gates open 1 o'clock p.m. Exhibition closes 6 p.m.

Admission, 6d. Children, 3d.

Admission by both Gates

BAND OF THE DUBLIN METROPOLITAN POLICE

SPORTS, DONKEY RACES, &c. DANCING COMPETITIONS

(Open to all Kildare)

Entrance Fee 6d. (Entries up to day of Show
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	1st Prize	2nd Prize
IRISH JIG	7/6	3/6
IRISH REEL	7/6	3/6
HORNPIPE	7/6	3/6

THREE-HAND REEL for
Children between 7 & 16 7/6 3/6

Refreshments on Grounds

W. M. DUNCAN TUCKER & SONS, LTD.

RECIPIENTS OF LARGE GOLD MEDAL & DIPLOMA OF HONOUR AT R.H.I.E. 1912



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Glasshouses of every description erected complete in any part of the country

LONDON OFFICE, 27 CANNON ST., E.C.

Works—TOTTENHAM.

WATER GARDENING

One of our fields is a natural water garden and we have long cultivated in it a large collection of plants suitable for beautifying streamside or lake

NYMPHÆAS

Water lilies are an essential feature. Our list, showing the wide range of colour that the newer hybrids give, with notes on culture, depth of water required, &c., will be sent post free on application.

R. Wallace & Co., Colchester

'EUREKA' WEED KILLER.

SAVES WEARY WEEDING.

50 gallons of mixed solution will kill all weeds on 200 square yards of paths, &c.

POWDER.

1/-	tin for 12 galls. solution	} Free Tin and Cases.
1/6	" 25 " "	
6/-	" 100 " "	

LIQUID. 1-50.

1	gallon	-	2/-	-	drum free
1	"	-	3/6	-	gd. extra
1	"	-	6/6	-	1/6
5	"	-	14/-	-	2/6
10	"	-	25/6	-	cask 5/-



'EUREKA' Insecticide Lawn Sand, Bordeaux Mixture, Worm Killer, Hayward's Summer Shade, "Eurekatine" fumigant, &c.
Larger sizes of above articles at proportionately lower prices

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Full list with booklet, "Chemistry in Garden and Greenhouse," of agents or the makers—

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GREEN'S Lawn Mowers & Rollers



"STAND PRE-EMINENT."

Make perfect Golf Greens, Tennis Courts, Bowling Greens and Lawns.

Recent awards seven Gold Medals, nine Silver Medals.

Motor Lawn Mowers made in various sizes

under Green's Make, firmly refuse Substitutes.
SUPPLIED BY ALL IRONMONGERS.

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THOMAS GREEN & SON, Ltd.

Smithfield Ironworks, Leeds, and New
Surrey Works, Southwark Street,
LONDON, S.E.

By Special Appointment to



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MACKENZIE & MONCUR, LTD.

HOTHOUSE BUILDERS

HEATING, VENTILATING, AND ELECTRICAL

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SPECIALTIES:

All kinds of Hothouses in Teakwood, Archangel Larch or Petersburg Redwood.
Improved Ventilation Gearing * Patent Wood Spar Blinds * Heating
by Low Pressure, Hot Water or by Steam. * Improved Duplex System of
combined Hot Water Service and Heating. * Improved Ironclad System of
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WE DO NOT WORK ON THE UNSATISFACTORY PIECE-WORK SYSTEM, ALL
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ERECTED FOR THE RT. HON. THE EARL OF ABERDEEN, VICE REGAL LODGE, DUBLIN.
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VICTORIA STREET
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If you have a garden you need

"ABOL"

INSECTICIDE NON-POISONOUS

The World's Best Pest Destroyer.

The one never failing remedy for insects and diseases in gardens and greenhouses. Safe, certain, and reliable. Unequalled for MILDEW ON ROSES and other plants. Used at Royal Gardens, Windsor, Kew, Hampton Court and at White City.

$\frac{1}{2}$ pt., 1/-; pt., 1/6; qt., 2/6; $\frac{1}{2}$ gall., 4/-;
gall., 7/6.

"ABOL" FERTILIZER

Very highly concentrated, and much more Economical and Efficacious than any other. Imparts a wonderful and lasting benefit to all vegetation—is quick and sure in effect.

Tins, 6d. and 1/-, postage on 6d extra; 7 lbs. 2/6; 14 lbs., 4/6. Bags, 28 lbs, 7/6; 56 lbs 12/-; 112 lbs, 18/-;



PATENT SYRINGES

Specially Recommended by

THE NATIONAL ROSE SOCIETY.

Give just the right spray for applying washes efficiently and with absolute economy. Vary spray from fine to medium or coarse, as desired.

Now fitted with extra rings on the barrel to take the spare caps—thus the "Abol" is as perfect as it is possible for a sprayer to be.

No. 4 (1 x 14), 8/6; No. 5 (1 x 20), 10/6.
No. 6 ($1\frac{1}{2}$ x 20), 14/6. Bend, 1/6 extra

A 32 pp. Treatise on Garden Pests and Diseases, fully illustrated, will be sent to any reader

GRATIS AND POST FREE.

OF ALL NURSERYMEN
IRONMONGERS, &c. :

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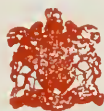
E. A. WHITE, Ltd.
9 Beltring, Paddock Wood, Kent.

"ABOL" WORMKILLER

The very best for earthworms on Putting and Bowling Greens, Garden Tennis and Croquet Lawns, NON-POISONOUS.

Tin, 1/-; post 6d. extra. 7 lbs. 1/9; 14 lbs. 3/-; 28 lbs., 5/-; 56 lbs., 7/6; 112 lbs., 12/-;
5 cwt., £2 17/6; 10 cwt. £3/15; 1 ton £7.

Royal Horticultural



Society of Ireland.

GREAT ROSE SHOW

AND

FLORAL FETE

WILL BE HELD

By kind permission of VISCOUNT IVEAGH, K.P.

IN THE GROUNDS OF

His Lordship's Dublin Residence

Stephen's Green (Entrance off
Harcourt Street)

FRIDAY, JULY 10th, 1914.

(Entries close July 2)

Early application for Trade space requested—

E. KNOWLDIN, Sec., 5 Molesworth St., DUBLIN

Huge Order for Garden Seeds.

THE United States Government each year distribute, by order of Congress, enormous quantities of seeds throughout the United States free of cost.

The orders given are sometimes very large, as may be judged from the fact that Messrs. Kelway & Son, wholesale seed growers and merchants, of Langport, Somerset (who have for some years been amongst the successful competitors for a portion of this order), have this year received from the United States Government from Washington an order for flower seeds and vegetable seeds alone totalling in weight nearly 14 tons!

This is probably one of the largest orders for flower and vegetable seeds ever received by one firm from one customer, as it is not composed, even in part, of agricultural seeds or of large seeds, such as peas and beans. Many hundreds of acres must have been under cultivation for the production of the weight in question. How large an area such an enormous quantity of seeds would sow seems almost past human computation!

Of the four other European firms who (in addition to the Langport firm) are this year favoured by the United States Government with their order for seeds, one is English, two French and one Dutch.

Correspondence.

DEAR SIR,—I send you a few flowers of our *Paeonia officinalis* var. "Sunbeam," which is at present very good. It does not mind the cold, and came through the 7 degrees of frost we had

on the morning of the 25th May without turning a hair. Not so other things, for *Rodgersias*, *Astilbes*, *Ferns*, such as *Polystichums*, *Lastreaas*, *Athyriums*, *Osmunda regalis*, cut down in the lower part, but safe up above. *O. gracilis* and the other N. A. American spp. escaped, although just as forward. Japanese Maples were badly damaged. Many of the *Abies*—*Azalea mollis*, which were a glorious sight on Sunday, the 21st, were not fit to be seen 24 hours afterwards. *Rhododendrons*—all the early-growing kinds—cut back and have to start again. The *Hollies* had their young tips injured, also *Laurels*, with the exception of *Sербica*, which is far and away the hardiest of all *Laurels*. This never begins to grow until the middle or end of June (to-day it has not yet started), and so is very wise in its generation, and is a useful kind for cold districts. The tops of our beech hedges are all browned, but look rather pretty at a distance.—Yours truly,

Newry, 9th June, 1914.

G. N. SMITH.

Boyal Horticultural Society of Ireland.

THE usual monthly meeting of the council was held at the society's offices, 5 Molesworth Street, Dublin, on the 12th ult., Mr. E. D'Olier presiding. A letter was read from the Royal Dublin Society, a unanimous vote of thanks being accorded to the Royal Dublin Society for facilities afforded for holding the last Spring Show in the large central hall, Ballsbridge. On a draft of the 1915 spring show schedule being submitted for approval, Sir Fredk. Moore (Hon. Sec.) reported that Mrs. Greer, Curragh Grange, had kindly intimated that she would present a challenge cup for Alpine exhibits at the spring show to be

Perpetual Flowering Carnations

For the Greenhouse or Open Border.

Write at once for full particulars of these glorious plants. :: :: :: :: ::

Special Collections, *in bud*, from 15/- per dozen; will make a grand display. :: ::

One dozen (*extra good*) in 3 inch pots, 7/6.

YOUNG & CO. HATHERLEY, CHELTENHAM

Read Taudevin's Cultural Treatise.

PEA TRAINERS

The 'PARAGON'

(PATENT)

SINCE their introduction some few years ago these Trainers have been steadily gaining in public favour. A real boon to Gardeners. Simple, effective and durable; giving ample support and keeping the growing peas in neat straight lines. Do not harbor insects or pollute the soil.

Made 4 ft., 5 ft. and 6 ft. high, and sent out in sets complete ready for putting up, at from 8/6 per set upward. Write for price list.

A Special Width made for Sweet Pea

WHAT USERS SAY:—
"Lady E. is much pleased with your Paragon Pea Trainers, which are most useful and satisfactory."—GOREY.

"I am delighted with your Pea Trainers. Please send me another set."—DUBLIN. Supplied through Seedmen, Ironmongers, &c. or sent carriage paid from the inventors—



The PARAGON PEA TRAINER CO., Bridge St., Banbridge, Co. Down

Thompson & Morgan's far-famed Seeds & Plants

Revised CATALOGUES for 1914 free on application.

The high quality of our FLOWER AND VEGETABLE SEEDS is now universally recognised, and our CATALOGUE—really a book of reference on hardy flowers—describes over 3,000 different kinds, many of them not obtainable elsewhere.

Our HARDY PLANTS, mostly Alpine and Herbaceous, are strong, fibrous rooted stuff, in all the newest and best varieties, at moderate prices

Trial Order Solicited.

THOMPSON & MORGAN, Seed Establishment and Hardy Plant Nurseries, IPSWICH

If you FUMIGATE OR SPRAY
Do it Effectively and Use

NICOTICIDE

Fumigant

1 pint for
1 pint for
6 oz. for
4 oz. for
2 oz. for



Feet	Each	Carriage Paid
40 000	15/-	
20 000	7/6	
12 000	4/6	
8 000	3/-	
4 000	1/8	

NICOTICIDE FUMIGATORS, 1/- each for 5,000 cubic feet
NICOTICIDE

PLANT SPRAY

is very effective where it is not convenient to fumigate. We advise you to try it. It will also be useful as a Winter Dressing for Peaches, &c.
1 pint 1/2; Pint, 2/- quart, 3/6; 1/2 gall., 5/-; gallon, 10/-.
Carriage Paid. Ask your Seedsmen for it.

LAWN SAND

entirely eradicates Daisies, Weeds, Moss, &c., & b sides stimulating the Grass
28 lbs. will dress 100 sq. yds. 6d., 1s., and 2s. 6d Tins ;
1/2 cwt., 6s. ; 1 cwt., 11s. ; 1 cwt., 20s Carriage Paid.

WORM POWDER

a certain remedy for removing Worms and clearing Worm Casts.
Use 1 lb. to the sq. yd. Simply sprinkle fairly thickly on the Grass and water copiously.

14 lbs	1 cwt.	1 cwt.	5 cwt.	1 ton.	2 ton.
3/-	5	7 6	12 6	£3	£5 10
					£10 10

Use also COW'S TOBACCO POWDER & QUASSIA EXTRACT
Ask your Seedsmen for the above and refuse all imitations
HUNTER & GOW, Ltd. 31 Thomas Street, LIVERPOOL

THE CHEAPEST INSECTICIDE OF THE DAY

"NIQUAS"

(NON-POISONOUS)

IMPROVED

A Concentrated Extract of Quassia, combined with other valuable ingredients, forming a cheap, safe, and effective Insecticide for syringing and dipping. It destroys all Insect Pests infesting Trees and Plants, whilst no possible injury to vegetation can result from its use. It can be applied with syringe or pump, or used for dipping.

PRICES—Half-pint, 1/-; pint, 1/6; quart, 2/6; half-gallon, 4/-; gallon, 7/6; five gallons, 25/-; ten gallons, 45/-
1 gallon sufficient for 80 gallons of water.

STANDEN'S MANURE

(Established over 35 Years)

Exceeds all others in General Fertilising Properties and Staying Powers

Analysis on Application

Sold in Tins, 1/-, 2/6, 5/6 each; and in Kegs, well secured, to prevent loss through exposure, 28 lbs., 8 6; 56 lbs., 13/6; 112 lbs., 22/6

CORRY'S SPECIAL

Chrysanthemum Manure

Sold in Tins, 1/-, 2/6, 5/6, and Bags, 1/2 cwt., 10/6; 1 cwt., 18/-;
1 cwt., 32/-

For Fumigating in Greenhouses.

"LETHORION"

Improved Metal Cones

Registered No. 62,597

To destroy Insect Pests. The Candle attached to each Cone only needs lighting, and there is no further trouble. They are most efficacious.

No. 1. For frames and "lean-to's" up to 1,000 cubic feet. Price, 6d. each.

No. 2. For small greenhouses up to 1,500 cubic feet. Price, 8d. each.

No. 3. For a well secured house of 2,000 to 2,500 cubic feet. Price, 1/- each.

Fowler's Lawn Sand

This preparation is for destroying Daisies and other weeds on lawns, and at the same time stimulating the growth of the grass. If one tin is tried as a sample, its value will be at once appreciated. Sales are largely increasing.

Tins, 1/-, 2/6, and 5/- each; Kegs, 1/2 cwt., 8 6; 1 cwt., 16/-;
1 cwt., 30/-

ELLIOTT'S

'Summer Cloud' Shading

Registered Trade Mark No. 14,629.

(The only genuine original and improved article)

For Greenhouses. A pleasant green shade is given to the glass. In packets, 1/- for 100 feet of glass, and 2/6 each for 300 feet.

Sole Manufacturers :

CORRY & CO., Ltd.

LONDON

SOLD BY ALL NURSERYMEN AND SEEDSMEN

THOMSON'S
MANURES
FOR
VINES PLANTS & VEGETABLES

PERFECT PLANT FOODS
THE RESULT OF MANY YEARS' PRACTICAL
EXPERIENCE IN GARDENING
USED ALL OVER THE WORLD
SOLD BY SEEDSMEN & NURSERYMEN
EVERYWHERE

SOLE MANUFACTURERS
THOMSON & BOWEN, LTD.
10, ABchurch Lane, LONDON, E.C. 4

restricted to trade exhibitors, a unanimous vote of thanks being passed to Mrs. Greer for this addition to the spring show schedule, and, further, for renewing the Alpine challenge cup won out by her in the amateurs' class. Judges were nominated and other preliminary arrangements made for the summer show to be held in Lord Iveagh's grounds, Dublin, on Friday, July 10th. For other particulars see advertisement in this issue. Mrs. Gilmore, St. Helens, Bray, on the proposition of Mrs. Butler, Rynville, Bray, was elected a member of the society.

Fethard Flower Show.

The fourth annual show and fête of the Fethard Flower and Industrial Society is to be held at Lakefield by kind permission of J. G. O'Brien, Esq., on Thursday, July 23rd, 1914.

The schedule is designed to meet the needs of all exhibitors of popular flowers and garden produce, and some very good prizes are offered, such as the grand £10 prize for Sweet Peas and the grand £3 for Carnations, both open to all Ireland

The promoters of the show are doing a great deal of good by encouraging cottage industries and horticulture, and well deserve the support of the public.

Catalogues.

MESSRS. W. & G. FOYLE, 121 Charing Cross Road, London, W.C., the well-known booksellers, send an excellent list of

botanical and horticultural books; they sell both second-hand and new books.

Those who require horticultural books should apply for the free catalogue, for often a useful book in good condition may be obtained at a very moderate price. School and other science books are supplied.

Irish Show Fixtures for 1914.

This list is intended to assist societies in selecting dates for their shows by indicating the arrangements which have already been made and preventing the clashing of show dates.

Secretaries will greatly oblige by sending the earliest possible intimation of their fixtures and of any change which takes place in their arrangements.

July	10	R. H. S. I., Summer Show, Lord Iveagh's Grounds, Dublin.
"	15	Kingstown Horticultural Society.
"	15	Lucan, Saggart and Clondalkin Show. Hon. Sec., Mrs. R. Shackleton.
"	18	Howth Gardening and Home Industries Society's Show, at Howth Castle.
"	18	Terenure and District Horticultural Society, Terenure, Dublin. Hon. Sec., A. Phipps, Esq., St. Ann's, Kimmage Road, Dublin.

Smith's "Perfect" Patent Powder WEED KILLER

MARVELLOUS INVENTION

MOST EFFECTIVE

Nothing like it ever seen before. Soluble in Cold Water. All Tins Free. No Return Empties

4 Tins when mixed with water will cover about 400 square yards.

1 Tin, sufficient to make	25 gallons	£0 1 9	
4 Tins "	100 "	0 6 6	
8 Tins "	200 "	0 12 6	Box 3d. extra
12 Tins "	300 "	0 17 0	4d. "
20 Tins "	500 "	1 7 0	6d. "
40 Tins "	1,000 "	2 8 0	1s. "

Carriage Paid on 8 Tins and upwards to Stations in Ireland.

SMITH'S LIQUID WEED KILLER

One gallon to make 25 gallons for use

1 gallon	1 9	6 gallons	9 6	16 gallons	1 2 0
2 "	3 6	8 "	12 6	18 "	1 5 0
3 "	5 0	10 "	14 0	20 "	1 7 0
4 "	6 6	12 "	17 0	40 "	2 8 0
5 "	8 0				

Carriage Paid on 8 gallons and upwards.

Gallons when mixed will cover an area of about 400 square yards.

	Double Strength (1 to 50)		PRICES -	
1 gallon	3 6	5 gallons	13 6	16 gallons 38 0
2 "	6 6	6 "	16 0	20 " 46 0
3 "	9 3	8 "	21 0	40 " 88 0
4 "	11 6	10 "	25 0	

Carriage Paid on 4 gallons & upwards. Drums and Casks charged extra, but full price allowed when returned in good condition, carriage paid

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— L. CREAGHE CREAGHE-HOWARD

- July 23 Fethard Flower and Industrial Society's Show, Lakefield, Fethard. Hon. Sec., Rev. R. C. Patten.
- " 29 Stillorgan and Foxrock Horticultural Society, at The Paddock, Leopards-town.
- " 30 Killarney Flower and Industrial Society, Killarney. Hon. Sec., J. Henry, Esq., Danesfort Cottage, Killarney.
- " 30 Co. Clare Horticultural Society, Ennis. Summer Show, Ennis. Hon. Sec., Rev. R. Scott, The Manse, Ennis, Co. Clare.
- Aug. 5 Portunna Horticultural and Industrial Show. Hon. Sec., Rev. J. Griffin, Clonturbert Rectory, Ballinasloe.
- " 5 Warrenpoint Flower Show. Hon. Sec., Dr. George W. Connor, The Cottage, Warrenpoint, Co. Down.
- " 13 Co. Galway Horticultural Show, Ballinasloe. Hon. Sec., Miss O'Shaughnessy, Birch Grove, Ballinasloe.
- " 15 Naas District Horticultural Society, Naas. Hon. Sec., Dr. O'Donel Browne, Gortnagrena, Naas.
- " 25 R. H. S. I., Autumn Show, Lord Iveagh's Grounds, Dublin.
- Sept. 3 Kilkenny Horticultural Society, St. James's Park, Kilkenny. Hon. Sec., Miss F. E. Butler, Lavistown House.
- Oct. 1 Co. Clare Horticultural Society Ennis—Fruit and Farm Produce.



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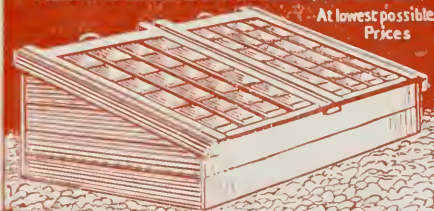


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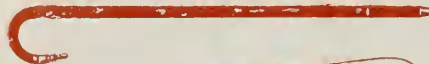
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DESTRUCTOR.**

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For Burning up all Garden
Refuse and Rubbish wet or dry
Feed at top, all kinds of
Rubbish quickly reduced to
ashes, than which there is
nothing better as a Garden
Fertiliser. :: ::

Outside Measurement at Base
24 in., Height, 41 in. Weight 37 lbs

Price 15/- each, Carriage Paid

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For destroying Weeds, Moss, etc., on
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Powder Weed Killer.

Dissolves quickly in Cold Water.

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Tins free.

Liquid Weed Killer.

Strength, 1 to 25 galls. of water. 1 gall. 2/3 (tin free); 5
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Kills Daisies, Moss, etc., and fertilises the grass, no other
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With long handle, making stooping unnecessary, 2 6 extra.

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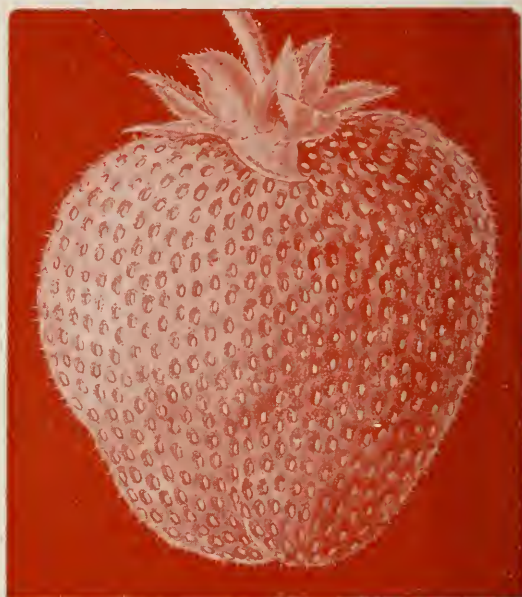
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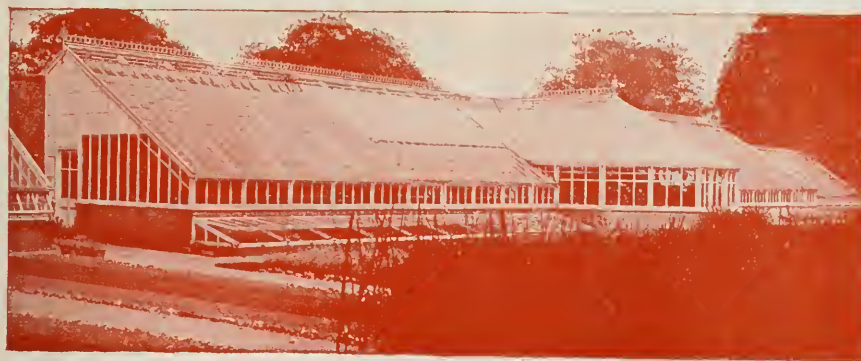
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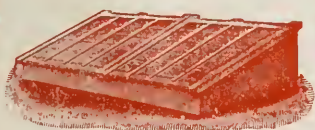
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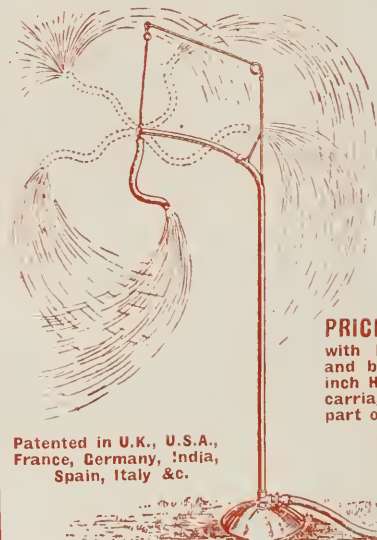
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SAVES WEARY WEEDING.

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POWDER.

1/-	tin for 12 galls. solution	} Free Tins and Cases.
1/6	“ 25 “ “	
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LIQUID. 1-50.

4 gallon	- 2/-	- drum free
1	- 3/6	- “ 9d. extra
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**SPECIALISTS IN THE MANUFACTURE OF
HORTICULTURAL BUILDINGS & HEATING APPARATUS**

DARLINGTON



ERECTED FOR THE RT. HON. THE EARL OF ABERDEEN, VICE REGAL LODGE, DUBLIN.
(Per H. M. Commissioners of Public Works).

THE REASON WHY customers come to us for Glasshouses and Heating Apparatus is because they know they will get the **best value for the least possible expenditure.** A few of our customers in Ireland include the Duke of Leinster, the Right Hon. Chief Baron Palles, The Marquess Conyngham, The Marquesses of Headfort, Londonderry; Earl Fitzwilliam, the Earls of Donoughmore, Dunraven, Erne, Longford, Listowel, Rosse, Aberdeen; Lords Ardilaun, Barrymore, Castletown, Cloncurry, Dunleath, Farnham; Lady Maurice FitzGerald; Colonel the Hon. C. F. Crichton. II. P. Goodbody, Esq., &c., &c.

LONDON OFFICE:

**BELGRAVIA CHAMBERS
VICTORIA STREET
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Awards in 1914

FOR

WEBBS'

Vegetables and Flowers

R.H.S. Great Chelsea Show
GOLD MEDAL

Great Yorkshire Gala ::
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Wolverhampton Floral Fete
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GOLD MEDAL

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Gratis and Post Free*

WEBB & SONS

THE KING'S SEEDSMEN

Wordsley, STOURBRIDGE

The Best Cabbage for Present Sowing



WEBBS' EMPEROR ("Britain's Great Cabbage")

6d. and 1s. per packet; 1s. 6d. per ounce. Post Free

The earliest and best cabbage in cultivation. Remarkably free from any tendency to 'bolt'

Royal Horticultural



Society of Ireland

AUTUMN SHOW

(By kind permission)

Lord Iveagh's Grounds, Dublin

TUESDAY, AUGUST 25th, 1914

Sweet Peas, 27 classes; Roses,
12 classes; Dahlias, 7 classes;
Fruit, 32 classes; Vegetables,
9 classes, &c. :: :: ::

Challenge Cups for Dahlias,
Gladioli, Carnations, Sweet
Peas, and Vegetables. Gold,
Silver, and Bronze Medals.

INCREASED CASH PRIZES.

Entries close August 17th.

E. KNOWLDIN, Sec., 5 Molesworth St., DUBLIN

Answers to Correspondence.

REPLY TO CARBERRY.

FROM your description the Lilies are probably those called Leopard Lilies (*Lilium pardalinum*), and are apparently attacked by the "Lily Disease." In autumn dig up the bulbs clean them, and then rub well with sulphur, replant them in fresh ground in another part of the garden. Early next summer spray the foliage with a solution of Potassium Sulphide, 1 oz. to 2 galls. of water.

TURNIPS WITH A BITTER TASTE—GIVE your ground a good dressing of lime instead of manure for early sowings; if the soil is of limestone formation, dress with soot or burnt ashes. For later sowings, ground from which potatoes have been lifted will suit them well, and will not require manure. It should not have a deep digging, but the surface should be stirred with a fork, so that when the seeds are sown the ground can be made fairly firm. Treated as above, thinned and kept free of weeds, you will find the following sorts in every way satisfactory:—Early White Dutch, Strap Leaf, Snowball and American Stone. The cause of bitterness is probably that the taproot goes too deep, and this in freshly-manured ground produces a rank, bitter flavour.

Notes.

The strawberry season this year has been a very variable one. In some districts there has practically been no fruit, owing to the May frosts; in other districts they escaped, and there has been

a plentiful supply. Kent did not suffer very much this year, but round Wrexham and that district there was scarcely a strawberry left. Hampshire growers suffered somewhat, but not seriously. We have had a very good season here; we commenced to gather on June 3rd in this district and finished on July 20th.

Several varieties have done exceptionally well with us this year. King George has proved itself a trifle earlier than Royal Sovereign; it is also a sweeter strawberry, a more robust grower, and we think where Sovereign does not succeed this will take its place. It has also proved itself a week earlier where forced.

The Bedford has done well again this year. It is not a particularly large strawberry, but anyone who likes a very sweet strawberry and not too much juice, would do well to try it. We think it is one of the best maincrops.

Utility, as a later variety, has done exceptionally well, also Rival; the crop of this has been quite remarkable; it is a wonderfully compact habited variety; where space is limited it should be tried.

In the latest, nothing has done half so well as Laxton's Latest. Fruits of this have been very fine, and it has also been a wonderful cropper. We cannot too strongly recommend this for a late variety.

Of the older varieties, we find Sir Joseph Paxton is very much worn out, and the fruits are very diminished in size to what they were years ago. This also applies to President and Vicomtesse.

Pineapple we find one of the richest flavoured varieties of which we know.

The Queen has also been highly flavoured again this year.

The old Noble appears to be almost worn out now.

The present season promises to be a good one for runners; they threw them out very early, so they will have plenty of time to get established before delivery will be required.

Of the Perpetual varieties, Laxton's Perpetual is the freest in every way; the blooms on the young plants were pinched out in the spring, and they are now throwing up an immense crop of fruit, which will be ripe in a few days, and will continue for quite a month or six weeks, thus prolonging the season very considerably.

Of the two new varieties of Perpetuals we are distributing—viz., Laxton's "White Perpetual" and "Laxton's Everbearing"—both these varieties are showing up well, and we should certainly recommend a trial.

LAXTON BROTHERS.

YOUNG & CO. HATHERLEY, CHELTENHAM

Perpetual Carnation Specialists

Please send for our Special Catalogue of Perpetual Carnations for Bedding Out-of-Doors, just issued, post free.

Thompson & Morgan's far-famed Seeds & Plants

Revised CATALOGUES for 1914 free on application.

The high quality of our **FLOWER AND VEGETABLE SEEDS** is now universally recognised, and our **CATALOGUE**—really a book of reference on hardy flowers—describes over 3,000 different kinds, many of them not obtainable elsewhere.

Our **HARDY PLANTS**, mostly Alpine and Herbaceous, are strong, fibrous rooted stuff, in all the newest and best varieties, at moderate prices

Trial Order Solicited.

THOMPSON & MORGAN, Seed Establishment and Hardy Plant Nurseries, IPSWICH

If you FUMIGATE OR SPRAY
Do it Effectively and Use

NICOTICIDE

Fumigant

1 pint for
1 pint for
6 oz. for
4 oz. for
2 oz. for



Feet	Each	Carriage Paid
40,000	15/-	
20,000	7/6	
12,000	4/6	
8,000	3/-	
4,000	1/8	

NICOTICIDE FUMIGATORS, 1/- each for 5,000 cubic feet
NICOTICIDE

PLANT SPRAY

is very effective where it is not convenient to fumigate. We advise you to try it. It will also be useful as a Winter Dressing for Peaches, &c.
1 pint 12/-; Pint, 2/-; quart 3/6; 1/2 gall., 5/-; gallon 10/-.
Carriage Paid. Ask your Seedsmen for it.

LAWN SAND

entirely eradicates Daisies, Weeds, Moss, &c., & sides stimulating the Grass

28 lbs. will dress 100 sq. yds. 6d., 1s., and 2s. 6d. Tins:
1/2 cwt., 6s.; 1/4 cwt., 11s.; 1 cwt., 20s. Carriage Paid.

WORM POWDER

a certain remedy for removing Worms and clearing Worm Casts. Use 1 lb. to the sq. yd. Simply sprinkle fairly thickly on the Grass and water copiously.

14 lbs	1 cwt.	1 cwt.	1 cwt.	1 cwt.	1 ton.	2 ton.
3/-	5	7/6	12/6	5/3	£5 10	£10 10

Use also GOW'S TOBACCO POWDER & QUASSIA EXTRACT

Ask your Seedsmen for the above and refuse all imitations
HUNTER & GOW, Ltd. 31 Thomas Street, LIVERPOOL

THOMSON'S CELEBRATED MANURES

are a safe and simple guide to garden success, producing vigorous, healthy fruitful growth. They are the result of many years practical experience, gardening. For all garden crops Fruitbearing, Foliage and Flowering plants, Vegetables, Lawns &c., &c., our

Vine, Plant and Vegetable Manure

is unrivalled; as a stimulant for pot plants during the growing season our Special Chrysanthemum & Toppodressing Manure is excellent—they are both indispensable in your garden

Ask Your Seedsmen for full price lists pamphlets, &c. they are stocked everywhere

WM THOMSON & SONS, Ltd.

Sole Makers

Clovenfords, N.B.

THE CHEAPEST INSECTICIDE OF THE DAY

"NIQUAS"

(NON-POISONOUS)

IMPROVED

A Concentrated Extract of Quassia, combined with other valuable ingredients, forming a cheap, safe, and effective Insecticide for syringing and dipping. It destroys all Insect Pests infesting Trees and Plants, whilst no possible injury to vegetation can result from its use. It can be applied with syringe or pump, or used for dipping.

PRICES—Half-pint, 1/-; pint, 1/6; quart, 2/6; half-gallon, 4/-; gallon, 7/6; five gallons, 25/-; ten gallons, 45/-; 1 gallon sufficient for 80 gallons of water.

STANDEN'S MANURE

(Established over 35 Years)

Exceeds all others in General Fertilising Properties and Staying Powers

Analysis on Application

Sold in Tins, 1/-, 2/6, 5/6 each; and in Kegs, well secured, to prevent loss through exposure, 28 lbs., 8/6; 56 lbs., 13/6; 112 lbs., 22/6

CORRY'S SPECIAL Chrysanthemum Manure

Sold in Tins, 1/-, 2/6, 5/6, and Bags, 1/2 cwt., 10/6; 1 cwt., 18/-; 1 cwt., 32/-

For Fumigating in Greenhouses.

"LETHORION" Improved Metal Cones

Registered No. 62,597

To destroy Insect Pests. The Candle attached to each Cone only needs lighting, and there is no further trouble. They are most efficacious.

No. 1. For frames and "leant-to's" up to 1,000 cubic feet. Price, 6d. each.

No. 2. For small greenhouses up to 1,500 cubic feet. Price, 8d. each.

No. 3. For a well secured house of 2,000 to 2,500 cubic feet. Price, 1/- each.

Fowler's Lawn Sand

This preparation is for destroying Daisies and other weeds on lawns, and at the same time stimulating the growth of the grass. If one tin is tried as a sample, its value will be at once appreciated. Sales are largely increasing.

Tins, 1/-, 2/6, and 5/- each; Kegs, 1/2 cwt., 8/6; 1 cwt., 16/-; 1 cwt., 30/-

ELLIOTT'S 'Summer Cloud' Shading

Registered Trade Mark No. 14,020.

(The only genuine original and Improved article)

For Greenhouses. A pleasant green shade is given to the glass. In packets, 1/- for 100 feet of glass, and 2/6 each for 300 feet.

Sole Manufacturers: CORRY & CO., Ltd. LONDON

SOLD BY ALL NURSERYMEN AND SEEDSMEN

Alpines at the Royal Horticultural Show (Ireland).

It would be interesting to know whether the "member of the Society" who presented prizes at the recent show, held in Lord Iveagh's grounds, for the best collection of cut flowers of true Alpines and rock plants, grown in the open, and shown in vases, were pleased with the appearance of the only exhibit staged. If he or she be a real true gardener, in every sense of the word, and knows and cares for these fascinating Alpine and rock plants, surely the wish of this donor has been wrongly interpreted.

Could anybody contemplate putting this class of plant in vases six inches high and not more than three inches wide at the mouth, with no foliage but their own (as stated in the schedule) and make it a success? The real true beauty of these plants and their charming habits are completely lost when shown in this manner. How could *Sempervivum arachnoideum* look well with its stiff stems cut and put into a green six-inch show vase? Having no foliage of its own that could be picked it had to do without any. On the other hand, growing in its natural conditions, what a very handsome plant it is in or out of flower. The schedule permits moss, but even the addition of moss would never have made this *Sempervivum* look more natural. *Hypericum reptans*, the most beautiful and charming of all the dwarf *Hypericums*, was hanging down the

sides of the vase in a weak, helpless, unhappy condition, a plant which thrives best lying flat on the ground, covered with golden yellow cups and golden stamens. The true character of the plant was entirely lost. *Androsace lanuginosa* was another beautiful rock plant sacrificed to fill the scheduled number of vases.

If these flowers were shown in low glass vases, of the saucer shape, using their own foliage where possible and moss to support the blooms, some of the real beauty could be retained, and the class would be a very much more interesting one to visitors. On looking up last year's schedule, it appears that this is an entirely new venture, and in that case it is to be hoped that the Royal Horticultural Society's officials will be able to alter it in some way to make it less out of keeping with the true character of the plants.

X. Y. Z.

WE have received an intimation from Messrs. Young & Co. that after July 18th, Mr. Taudevin will have ceased to be the manager or to be in any capacity connected with them, and in future the business will be carried on under the direct supervision of the firm.

Catalogues.

MESSRS. YOUNG & Co. send us a copy of the new catalogue which they have put into circulation for the purpose of drawing

THE BEST CABBAGES FOR AUGUST SOWING

"Sutton's Harbinger is the earliest Cabbage grown; it is small, very compact and of excellent quality—an ideal early variety. Even last January some of the heads of this sort were fit for use. Another equally good variety is Sutton's April, but at times it is ready in March. It is a good, small Cabbage, larger than Harbinger, but an ideal amateur's variety. Sutton's Flower of Spring, a medium-sized form, early and equally reliable is most valuable; this closely follows the April, and may be had fit for the table early in April. It is a fine spring Cabbage.—G. WYTHES."
—*The Garden*.

SUTTON'S HARBINGER

Per packet, 1/- and 1/6

AWARD OF MERIT R.H.S.

SUTTON'S APRIL

Per packet, 1/-

SUTTON'S FLOWER OF SPRING

Per ounce, 1/-

POST FREE

Sutton & Sons

THE KING'S SEEDSMEN

READING

BENTLEY'S

COMPOUND LIQUID

Quassia Extract

(NON-POISONOUS)

THE ORIGINAL!

Fatal to every form of Aphis, including GREEN, BLACK and WHITE FLY. Infallible and safe anywhere and everywhere. Specially suitable for use on Apple, Plum and Cherry Trees, Roses, Chrysanthemums, Hops, Tomatoes and Bush Fruits.

One gall. makes from 80 to 100 galls. of Wash

40 galls., 3/6 per gall.; 20 galls., 3/7 per gall.; 10 galls., 3/8 per gall.; 5 galls., 3/9 per gall.; 1 gall., 4/2; 1/2 gall., 2/6; 1 quart, 1/6; 1 pint, 1/-

CARRIAGE PAID ON 5/- ORDERS AND UPWARDS

Sole Manufacturers

Joseph Bentley, Ltd.

CHEMICAL WORKS

BARROW - ON - HUMBER, HULL.

special attention to the attractions of "Perpetual Flowering Carnations" as bedding out plants. The catalogue is illustrated and contains quite a small "treatise" on the culture of the plant both for spring and autumn bedding, and should prove interesting information to those who would like to grow "Perpetuals," but who may fear to try them because they have not the accommodation of a greenhouse. It would certainly be worth while to secure a copy, which we understand will be sent post free.

Irish Show Fixtures for 1914.

THIS list is intended to assist societies in selecting dates for their shows by indicating the arrangements which have already been made and preventing the clashing of show dates.

Secretaries will greatly oblige by sending the earliest possible intimation of their fixtures and of any change which takes place in their arrangements.

- Aug. 5 Portumna Horticultural and Industrial Show. Hon. Sec., Rev. J. Griffin, Clonturbert Rectory, Balinasloe.
- " 5 Warrenpoint Flower Show. Hon. Sec., Dr. George W. Connor, The Cottage, Warrenpoint, Co. Down.
- " 13 Co. Galway Horticultural Show, Ballinasloe. Hon. Sec., Miss O'Shaughnessy, Birch Grove, Balinasloe.

- Aug. 15 Naas District Horticultural Society, Naas. Hon. Sec., Dr. O'Donel Browne, Gortnagrena, Naas.
- " 25 R. H. S. I., Autumn Show, Lord Iveagh's Grounds, Dublin.
- Sept. 3 Kilkenny Horticultural Society, St. James's Park, Kilkenny. Hon. Sec., Miss F. E. Butler, Lavistown House.
- Oct. 1 Co. Clare Horticultural Society Ennis—Fruit and Farm Produce.

Dublin Wholesale Markets.

THROUGHOUT the month of July the marketing of small fruits is always of first importance, as they engage almost the entire attention of all concerned in the trade.

Strawberries are rapidly finishing off with the exception of some consignments from Armagh. On account of the dry weather the season of this fruit was short and the supplies were not equal to previous years. The prices were exceptionally good and firm, showing little or no fluctuation except towards the end of the month, and the Cross-channel trade ceased early, thereby giving a chance to the home-grown. Gooseberries have not been so plentifully marketed this season, largely owing to the ravages of the American mildew. The demand for red and black currants has not been as great as was expected; but raspberries were eagerly looked after and made

G. HAYWARD F.R.H.S.
CRYSTAL PALACE HORTICULTURAL WORKS
BROCKLEY ROAD LONDON S.E.
THE CHEAPEST AND BEST FIRM FOR
GREENHOUSES. SEND FOR LIST POST FREE.



FROM £300 - FROM £2150
ALL 21 OZ GLASS THROUGHOUT.
Makers of all kinds of Greenhouses, Garden Frames,
At lowest possible Prices



THIS TWO-LIGHT FRAME made to standard size 6 ft. by 4 ft. Best materials, painted two coats, glazed with 21 oz. glass, ready for use.
PRICE 30/- packed free on Boat.

KILPEST

If you want a
BEAUTIFUL GARDEN
you must preserve your plants against all kinds of blight and garden pests.

ORDER

Awarded Gold Medal. **"KILPEST"** TO-DAY. Awarded Gold Medal.

The best insecticide on the Market—and is non-poisonous
"KILPEST" EXTERMINATES
Black and Green Fly, Red Spider, Thrip, Gooseberry Caterpillar, Mildew and Aphid Pests, &c., on Plants, Flowers, or Foliage. It cannot harm anything but insect life, and the most delicate plant cannot be injured by its use
2 ozs. "Kilpest" makes 1 Gall. Insecticide.
Prices—Pint, 1/6; Quart, 2/6; Gall, 5/-; 3-gall, 8/-.
Get a supply from your dealer to-day. If any difficulty is experienced in obtaining "Kilpest" send a post card to
Sole Manufacturers
CLOUGH & FIRTH, Ltd.
BRIDGE MILLS, KNARESBOROUGH, YORKS.



handsome returns. It is pleasing to note that the loganberry is coming well to the front as is apparent by the increased quantities of this fruit marketed from year to year. Cherries have been selling well, and, judging from the stands, the crop must be a plentiful one. Irish apples are making their appearance in small quantities, consisting of "thinings" of some of the larger cooking varieties. French plums are well supplied, the demand for them active and prices satisfactory.

Taking the returns all round, for soft fruits, it is encouraging to note that they have been distinctly good, although not up to the average of last year.

Cabbages and cauliflowers are comparatively scarce and poor, due to the dry weather, with the result that prices have risen considerably. Peas have been a glut on the market. Lettuce and spinach are selling well. Mushrooms are now plentiful and are eagerly bought up at high figures. Potatoes are well stocked, and prices remain steady for the present.

PRICE LIST—FRUIT.

		From s. d.	To s. d.
Cherries	per lb.	0 4	0 6
Currents—			
Black	"	0 3	0 5
Red	"	0 2½	0 5
Gooseberries	per basket 12 lbs.	2 0	3 3
"	per quart	0 2	0 3½
Greengages	per ½ bushel	5 0	7 0
Loganberries	per lb.	0 4	0 7
Melons	each	1 0	2 6
Peaches	per doz.	3 0	4 6
Raspberries	per lb.	0 4	0 9
Strawberries—			
Dessert	"	0 4	0 8
Preserving	"	0 2	0 4

VEGETABLES.

Beans (broad)	per float	0 8	1 0
Cabbages	per large load	12 0	25 0
"	per load	7 0	12 0
Cauliflowers	per doz.	2 0	3 6
Cucumbers	"	1 3	2 0
Lettuce	"	0 4	0 7

		From s. d.	To s. d.
Marrows	per doz.	2 0	3 0
Onions			
(Tripoli)	per bunch	0 7	1 4
Peas	per float	1 0	1 6
Tomatoes	per lb.	0 4	0 6
Spinach	per tray	0 6	0 10

FLOWERS.

Chrysanthemum max.	per doz. bunches	0 4	0 8
Cornflowers	"	0 4	0 6
Roses	per doz. blooms	0 6	1 4
Sweet Peas	per doz. bunches	0 8	1 3
Carnations	per doz.	1 6	2 0

J. D.



**SLUGS
SLUGS
SLUGS**

SANITAS POWDER will rid your Garden of **Slugs**, and protect your Seeds and Plants from all pests such as **Slugs, Worms, Rats, Mice, Sparrows, Cats, &c.**

Leaflet and Free Sample with instructions Free.
6d. and 1/- Tins and 12/6 per Cwt.
of all Chemists, Stores and Nurserymen.

THE SANITAS CO., Ltd.,
Limehouse, London, E.
Awarded Medal at Royal Horticultural Exhibition, 1911.

LITTLE'S

PESTICIDE

For BLIGHT, "BLACK SPOT,"
&c. on Apple or other Fruit Trees

1 Gal. Drums	6/- each
5 & 10 Gal. Drums	5/6 per gal.
40 Gal. Casks	5/- per gal.

ANTIPEST

KILLS RED SPIDER, CATERPILLAR, &c.

Used by all the leading Gooseberry Growers
3/6 per gallon

WEED DESTROYER

KILLS ALL WEEDS, MOSSES, &c.
On Carriage Drives, Gravel Paths

DOUBLE THE STRENGTH
OF MOST WEED KILLERS

1 Gal. to 60 Gals. of Water

1 GAL. DRUM, 3/- Drum Free.
40-GAL. CASK, 2/- PER GAL. Cask Free.

WEEDOL

POWDER WEED KILLER, 1/9 per Tin

To make 25 to 30 Gallons

Morris, Little & Son, Ltd., Doncaster

Miscellaneous Section.

THE POPULARITY OF XL ALL SPECIALITIES increases every year. All gardeners proclaim that nothing equals these celebrated preparations.

XL ALL NICOTINE VAPORISING COMPOUND, the gardener's favourite Fumigant, both Liquid and cake.

XL ALL NICOTINE INSECTICIDE WASH for Syringing, Dipping, and Dressing Fruit Trees and Plants. Mealy Bug, Scale, &c., cannot exist where this is used.

XL ALL INSECTICIDE WASH B (*sine* Nicotine), best non-poisonous Wash on the market.

Other Preparations of great Renown are **XL ALL WEED KILLER**. Used once a year, no weeds can live. **XL ALL ROSE MANURE** grows prize blooms. Use it now!

Don't forget to ask your Nurseryman or Seedsman for my small pink list.

G. H. RICHARDS, Manufacturer,
234 Borough High Street, London, S.E.

LANDSCAPE GARDENING

DESIGNING, Laying out and Planting of New and Renovating of Old Gardens. The Making and Planting of Rock Gardens, Rockeries, Water and Bog Gardens, and Pergolas a Speciality.

Plans Prepared. Estimates Free.

RICHARD C. McM. SMYTH, F.R.H.S.
Mount Henry Dalkey, Co. Dublin

LADY GARDENER, trained Botanic Gardens, Glasnevin, and England, disengaged owing to war, desires post; flowers, fruit, vegetables, &c.; good references. Address—A. 268, IRISH GARDENING, 53 Upper Sackville Street, Dublin.

Books on Gardening, Vegetable Culture, Greenhouse Management, and all other subjects. Second hand at half prices. New 25% discount. **Catalogue No. 992**, free. State wants. Books bought.

W. & G. FOYLE, 121 Charing Cross Rd., London.

SANKEY'S FAMOUS GARDEN POTS
The BEST and Cheapest.
State quantity of each also required and have "carriage paid" quotation ("carriage" frequently amounts to half value of goods), or write for Price List, free.
SPECIAL POTS of all descriptions. Both Bowls and Fern Pots from 2d. each.
RICHARD SANKEY & SON, LTD.
Bulwell Potteries, NOTTINGHAM.

IF YOU HAVE A GLASS ROOF THAT LEAKS, a Conservatory to repair, or any kind of glazing work to be done, **CARSON'S PLASTINE** will save money, time, worry and annoyance consequent on the use of ordinary putty, which cracks, crumbles, and decays. It saves the expense of constant renewals. Carson's Wood Preservative in green and brown, for Palings, Trellis Work, &c. The best paint for Greenhouses is "Vitrolite." Write for Catalogue. **CARSON'S**, 22 Bachelor's Walk, Dublin.

AUTO-SHREDS IS CERTAIN DEATH to Leaf-mining Maggots, Mealy Bug and all Pests infesting plants under glass, &c. Simple to use, no apparatus required. In Boxes to Fumigate 1,000 cubic feet, 6d.; 10,000 cubic feet, 3s. 6d. each. Obtained of Seedsman and Florists; if unobtainable apply direct—
WM. DARLINGTON & SONS,
Ltd.

Wholesale Horticultural Sundriesmen,
HACKNEY, LONDON, N.E.



BUSINESS AS USUAL. Will customers please send us their orders as usual, and so keep 150 people in full employment!

NOW IS THE TIME TO PLANT your hardy Beds and Borders.

NOW IS THE TIME to spend money on gardening, in order to keep labour employed—surely the best of all forms of charity. Prices on application to **KELWAY & SON**, Plant Department (Ret'ail), **LANGPORT**.

BORDER PLANTS OF ALL KINDS. Lovely New Paeonies, Beautiful New Delphiniums, Wonderful New Gladioli, **The Premier House** for the above, **KELWAY & SON**, The Royal Horticulturists, **LANGPORT**, SOMERSET, ENGLAND. Prices free on application. "Gardens of Delight," Illustrate, 1s. post free.

JAPANESE IRISES.

The Coronation Cup has at last been won for hardy flowers :: :: ::

It was given to our exhibit of Japanese Irises, Astilbes, and other water-loving plants at the Holland House Show, of which one well-known critic wrote—

"Perhaps the most beautiful exhibit we have ever seen at the Show."

Special Lists of varieties post free on application.

R. WALLACE & CO., COLCHESTER.

'EUREKA' WEED KILLER.

SAVES WEARY WEEDING.

50 gallons of mixed solution will kill all weeds on 200 square yards of paths, &c.

POWDER.

1/-	tin for 12 galls. solution	Free Tins
1/8	" 25 "	and
6/-	" 100 "	Casca.

LIQUID. 1-50.

1 gallon	- 2/-	- drum free
1 "	- 3/6	- " 9d. extra
1 "	- 6/6	- " 1/6 "
5 "	- 14/-	- " 2/6 "
10 "	- 25/6	- cask 5/- "

'EUREKA' Insecticide Lawn Sand, Bordeaux Mixture, Worm Killer, Hayward's Summer Shade, "Eurekazine" Fumigant, &c. Larger sizes of above articles at proportionately lower prices.

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Full list with booklet, "Chemistry in Garden and Greenhouse," of agents or the makers—

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SOLE AGENTS: T. McKenzie & Sons, Ltd., 212 Gt. Brunswick St.; W. F. Wells & Son, 61 Upper Sackville St.; Sir J. W. Mackey, Ltd., 23 Upper Sackville St.; Hogg & Robertson, Ltd., 22 Mary St., &c., &c.



"GROSUP"
THE MOST PERFECT
Plant Food and Fertilizer

EVER PRODUCED
SAMPLE 1s. PACKAGE

Sufficient to thoroughly treat
20 Square Yards of Soil

SENT CARRIAGE PAID ON RECEIPT OF P.O.

ALSO IN BAGS—7, 14, 28, 56, 112 lbs.
2/6, 4/6, 7/6, 12/-, 18/- CARRIAGE PAID.

Growers Supply Association, Ltd.
BOULTON WORKS, HOCKLEY (B), BIRMINGHAM

Laxton's New Strawberries for 1914

Including the Grand New Forcing Variety

**LAXTON'S KING GEORGE V.
ADMIRAL, THE DUKE
AND BOUNTIFUL ::**

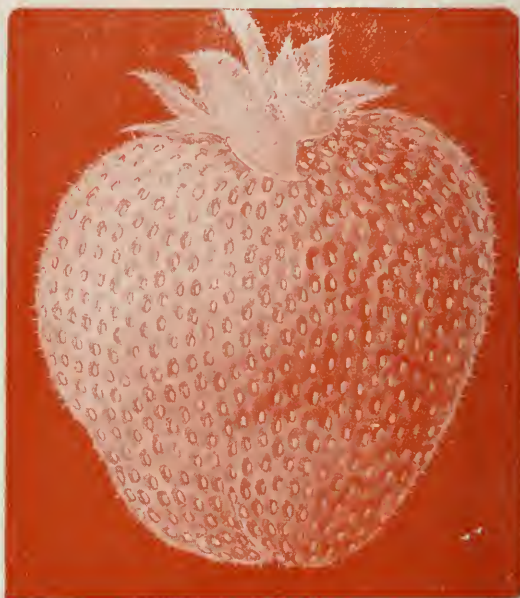
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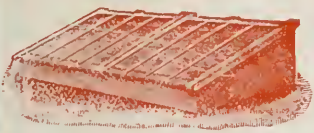
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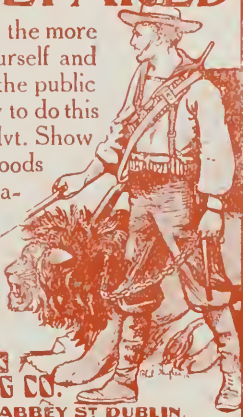
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BEAUTIFUL GARDEN
you must preserve your plants against all kinds of blight and garden pests.

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Awarded "KILPEST" Awarded
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"KILPEST" EXTERMINATES
Black and Green Fly, Red Spider, Thrip, Gooseberry Caterpillar, Mildew and Aphid Pests, &c. on Plants, Flowers, or Foliage. It cannot harm anything but insect life, and the most delicate plant cannot be injured by its use

2 ozs. "Kilpest" makes 1 Gall. Insecticide, Prices - Pint, 1 6; Quart, 2 9; Gall. 5 -; 1-gall. 8 - Also sold in tins 6d. each. Get a supply from your dealer to-day. If any difficulty is experienced in obtaining "Kilpest" send a postcard to

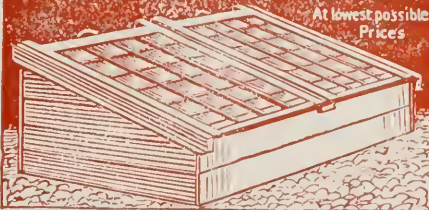
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ALL 21 OZ GLASS THROUGHOUT.
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THIS TWO-LIGHT FRAME made to standard size 6 ft. by 4 ft. Best materials, painted two coats, glazed with 21 oz. glass, ready for use.
PRICE 30/- packed free on Boat.

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Some sorts of Bulbs noted out of Price List 100 1,000
HYACINTHS, in the finest mixture for bedding or s. d. s. d.
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HYACINTHS, single, first size, named, in 25 leading sorts, red, white, and blue varieties, equal quantities, my selection	15 0	18 4
TULIPS, single early, in the finest mixture	2 0	40 0
TULIPS, Darwin, mixed	2 2	20 0
TULIPS, double, in the finest mixture	1 2	10 6
ANEMONES, single mixed	1 2	10 6
ANEMONE, 'The Bride', pure white	1 10	16 8
CROCUS, first size, in the finest mixture	0 8	5 10
CROCUS, second size, in the finest mixture	1 6	14 6
SCILLA SIBIRICA, rich blue	0 8	5 6
IRIS, SPANISH, mixed	3 6	35 0
IRIS, ENGLISH, mixed	1 4	12 6
NARCIS., single, in the finest mixture	2 6	20 0
NARCIS., Trumpet, in the finest mixture	2 6	20 0
NARCIS., double, fine mixture	4 6	40 0
NARCIS.-POLYANTHUS, finest mixed	1 6	13 6
SNOWDROPS, ELWESI, The Giant Snowdrop	0 9	7 0
RANUNCULUS, FRENCH, double mixed	2 0	—
SCILLA CAMPANULATA, and Blue Bells	2 0	—
SCILLA CAMPANULATA, white	1 6	—
SCILLA CAMPANULATA, mixed	1 0	—
TRITELEIA UNIFLORA	—	—

250 Bulbs of same kind will be charged at the 1,000 rate; 25 at the price per 100; 6 at the price per 12.

Ask for Illustrated Price List and see the Collections

Dublin Wholesale Markets.

NOT since the strike of last year was the price of cabbages so abnormal, but this acute condition is not due so much to the war crisis as to the scarcity of supplies consequent on the persistent drought and the ravages of the fly. This vegetable is retailed at fancy prices, far beyond the meagre pockets of the ordinary consumer, for all that the markets are abundantly supplied with ordinary garden produce at prices scarcely remunerative to the growers. There has been no dearth in white turnips, vegetable marrows, peas, lettuce and beet, and these are being sold at moderate figures. Cauliflowers of good quality are scarce and change hands at exceptionally good prices. Spinach is scarce and dear. Parsnips and carrots are plentiful at reasonable returns. French beans are very plentiful, and are hard to dispose of at a respectable price.

Fruits in season were abundantly supplied from home sources, especially apples and plums. For the past fortnight foreign and Cross-channel supplies were almost entirely absent owing to the stoppage of transit facilities; but there is now an occasional consignment arriving. During the first week of the month several consignments of apples—of the varieties Beauty of Bath and Grenadier—from the counties Kilkenny and Waterford were much in evidence. They were of excellent quality, well-graded and marketed, and realised exceptionally good prices. But now apples are sold for little or nothing owing to the exorbitant price of sugar. In fact the salesmen find it difficult to dispose of them at any price. Plums are an excellent crop this year and are selling fairly well.

PRICE LAST.—FRUIT.		From	To
		s. d.	s. d.
Apples—			
Beauty of Bath	per bushel box	8 0	10 0
„	per $\frac{1}{2}$ bushel box	3 0	4 6
Grenadier	per bushel box	3 6	5 6
Dessert	per dozen	0 6	0 8
Cooking	„	0 1	0 6
Grapes—			
Black	per lb.	1 6	2 6
Muscats	„	2 0	2 6
Melons	each	1 6	2 0
Peaches	per dozen	2 6	3 6
Pears—			
William's	„	1 6	2 0
Plums	per half bushel	2 6	4 0
Nectarines	per dozen	1 6	2 6

VEGETABLES.

Cabbages			
(Yorks)	per large load	25 0	50 0
„	per medium load	15 0	25 0
„	per small load	8 0	15 0
Cauliflowers	per dozen	1 4	2 6
Cucumbers	„	1 3	2 0
Lettuce	„	0 4	0 6
Marrows	„	1 8	3 0
Onions	per bunch	1 0	1 6
(Tripoli)			
Peas	per float	1 6	2 0

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Perpetual Carnation Specialists

Please send for our Special Catalogue of Perpetual Carnations for Bedding Out-of-Doors, just issued, post free.



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Protects your Seeds and Seedlings and Garden Beds from Slugs.
Protects your new sown Grass Seed from Birds.
Protects Garden Beds from Cats, Rats and Mice.
Put a little round every Seedling and Plant.
Put a little in every Seed Drill. Sprinkle a little over every bed before digging over and bedding out.
For special Leaflet and Sample send to
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NICOTICIDE

Fumigant

1 pint for	40,000	15/-	Carriage Paid
$\frac{1}{2}$ pint for	20,000	7/6	
6 oz. for	12,000	4/6	
4 oz. for	8,000	3/-	
2 oz. for	4,000	1/8	



NICOTICIDE FUMIGANTS, 1/- each for 5,000 cubic feet
NICOTICIDE

PLANT SPRAY

is very effective where it is not convenient to fumigate. We advise you to try it. It will also be useful as a Winter Dressing for Peaches, &c. $\frac{1}{2}$ pint 12/-; Pint, 2/-; quart 3/6; $\frac{1}{2}$ gall., 5/-; gallon 10/- Carriage Paid. Ask your Seedsmen for it.

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entirely eradicates Daisies, Weeds, Moss, &c., & sides stimulating the Grass

28 lbs. will dress 100 sq. yds. 6d., 1s., and 2s. 6d. Tins: $\frac{1}{2}$ cwt., 6s.; $\frac{1}{4}$ cwt., 11s.; 1 cwt., 20s Carriage Paid.

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14 lbs. $\frac{1}{4}$ cwt. 1 cwt. 1 cwt. 5 cwt. 1 ton. 21 ton.
3/- 6 7/6 12/6 £3 £5 10 £10 10

Use also GOW'S TOBACCO POWDER & QUASSIA EXTRACT

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It can be applied with syringe or pump, or used for dipping.

PRICES Half-pint, 1/-; pint, 1/6; quart, 2/6; half-gallon, 4/-; gallon, 7/6; five gallons, 25/-; ten gallons, 45/-
1 gallon sufficient for 80 gallons of water.

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Exceeds all others in General Fertilising Properties and Staying Powers

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Sold in Tins, 1/-, 2/6, 5/6 each; and in Kegs, well secured, to prevent loss through exposure, 28 lbs., 8/6; 56 lbs., 13/6; 112 lbs., 22/6

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Sold in Tins, 1/-, 2/6, 5/6, and Bags, $\frac{1}{2}$ cwt., 10/6; $\frac{1}{4}$ cwt., 18/-;
1 cwt., 32/-

For Fumigating in Greenhouses.

"LETHORION" Improved Metal Cones

Registered No. 62,597

To destroy Insect Pests. The Candle attached to each Cone only needs lighting, and there is no further trouble. They are most efficacious.

No. 1. For frames and "leant-to's" up to 1,000 cubic feet. Price, 6d. each.

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Fowler's Lawn Sand

This preparation is for destroying Daisies and other weeds on lawns, and at the same time stimulating the growth of the grass. If one tin is tried as a sample, its value will be at once appreciated. Sales are largely increasing.

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		s.	d.	s.	d.			s.	d.	s.	d.
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Tomatoes	per lb.	0	1	0	6	Cornflowers	per doz. bunches	0	1	0	6
Potatoes—						Asters	" "	1	0	1	6
British						Gypsophila					
Queens	per cwt.	1	0	5	0	paucidata	per doz. sprays	1	6	2	0
Beans, French	per tray	0	6	1	8						

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For BLIGHT, "BLACK SPOT,"
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1 Gal. Drums 6/- each
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KILLS ALL WEEDS, MOSSES, &c.
On Carriage Drives, Gravel Paths

DOUBLE THE STRENGTH
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XL ALL INSECTICIDE WASH B (*sine* Nicotine), best non-poisonous Wash on the market.

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(Signed)

R. CRAWFORD,

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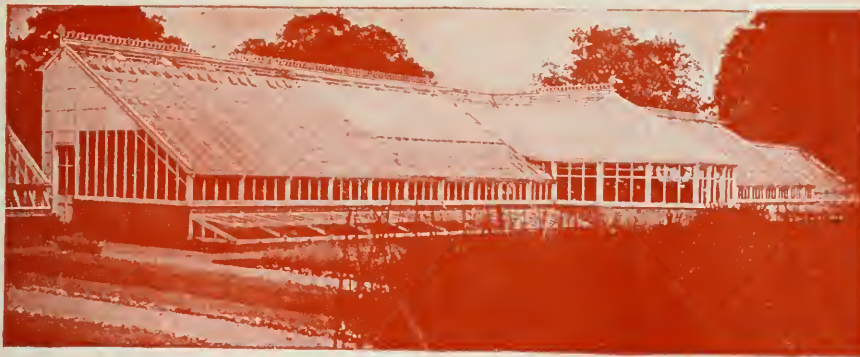
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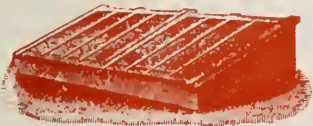
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For Shading CONSERVATORIES,
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Our Shadings are recommended by
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WINDOW GLASS

Polished Plate for Shop Windows.
 Horticultural Glass at Lowest Rates

DEATH TO THE WEEDS !

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Strongly Recommended for the Destruction of Weeds, &c.

Price, 2s. per gallon ; 5 gallons, 1s. 6d. per gallon ;
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NO INCREASE IN PRICES

Hyacinths, "The Royal Twelve" Exhibition Varieties, 6/6 ::

„ "The Popular Twelve" First size bulbs, 4/- ::

„ For bedding in separate colours named, 18/- 100

„ „ „ mixed colours, 12/- 100, 1/8 dozen

Tulips. Early single, finest sorts, from 3/- 100 :: ::

„ Darwin and May Flowering, Prize Stocks grown on
our own farms, **see special list** :: ::

Narcissus, Crocus, Snowdrops, Lilies and other choice bulbs

:: :: :: in great variety :: ::

Send for our Catalogue—it will interest you

BOWLS FOR BULBS a large selection. Call at our warehouse

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Over half a million to select from

**300,000 Maiden Two and
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THE ORIGINAL!

Fatal to every form of Aphis, including
GREEN, BLACK and WHITE FLY.
infallible and safe anywhere and
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use on Apple, Plum and Cherry Trees
Roses, Chrysanthemums, Hops,
Tomatoes and Bush Fruits.

One gall. makes from 80 to 100 galls. of Wash

40 galls., 3/6 per gall.; 20 galls., 3/7 per gall.; 10 galls.,
3/8 per gall.; 5 galls., 3/9 per gall.; 1 gall., 4/2; ½ gall.,
2/6; 1 quart, 1/6; 1 pint, 1/-

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SPECIALTIES:

All kinds of Hothouses in Teakwood, Archangel Larch or Petersburg Redwood.
Improved Ventilation Gearing * Patent Wood Spar Blinds * Heating
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BULBS AND BOWLS

FOR CULTIVATION IN FIBRE



Round Bowls

10d., 1/-, 1/3, 1/6, 2/- & 3/-

Round Bowls, with holes
in sides 1/9

Oval Bowls 1/-, 2/- & 3/3

Oblong Bowls, plain
10d., 1/- & 2/3

Prepared Fibre

per bushel 3/6

per peck 1/-

Narcissus and Daffodils

	Per doz.	s. d
Barri Conspicuous , yellow, with crimson cup	0	6
Bicolor Empress , white perianth, golden trumpet	1	0
— Victoria , a fine flower of perfect form	1	0
Emperor , primrose perianth and golden trumpet	1	0
Golden Spur , clear golden-yellow	1	0
Sir Watkin , golden-yellow; a grand flower	1	0
Von Sion or Telamonius Plenus (DOUBLE DAFFODIL)	1	0

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Grand Monarque , white, with yellow cup	1	4
Paper White, Grandiflora , pure white early	1	0

Choice Named Hyacinths

A selection of the finest varieties.

FIRST SIZE BULBS .. from 4d. to 8d. each
SECOND SIZE BULBS 3d. each; 2/9 per doz.

Early White Roman Hyacinths

EXTRA SELECTED BULBS.
per doz., from 2/6 to 3/-

Dutch Roman or Miniature Hyacinths

These charming varieties are specially suitable for bowl treatment, the spikes are looser and more graceful than the ordinary Dutch Hyacinths. and the bulbs being small quite a number can be placed in a bowl of ordinary size.

IN VARIOUS SHADES, distinct
per doz., 1/6; per 100, 10/6

EDMONDSON BROTHERS

SEED AND BULB MERCHANTS

10 DAME STREET DUBLIN

Journal of the Royal Horticultural Society.

THE August Journal of the Royal Horticultural Society contains many interesting articles, much information, and some good illustrations. Among the articles are:—North American Forestry, by Prof. Somerville; The Use of Explosives and the Blow Lamp in the Garden, by H. E. Durham; Pruning Hardy Shrubs, by E. Beckett; Fairy Flies and their Hosts, by Enoch, &c. Also notes and abstracts: and the results of the R. H. S. examinations.

Catalogues

W. DRUMMOND & SONS, Dublin, send a copy of their Flower Bulbs for 1914. As usual the list is well printed on good paper, the illustrations being exceptionally clear and distinct. Their collection of named Hyacinths is a well selected one, and, as they are listed according to their colours, selection is an easy matter. Tulips are quite invaluable for spring bedding, and here we have good lists of the best varieties in each section,—early Tulips, Cottage Tulips and Darwins—all offered at a reasonable price. All the leading sorts of Narcissus are stocked, and we are pleased to see an illustration of N. Johnstoni, Queen of Spain—a beautiful Daffodil for planting in short grass under trees. Amaryllis, Anemones, Crocus, Gladiolus and a host of other miscellaneous bulbs are stocked in great variety. Chionodoxa Lucilia (The Glory of the Snow) is a delightful spring flowering bulbous plant, and is not planted so freely as it deserves. Towards the end of the catalogue are lists of Alpines, herbaceous plants, strawberries, vegetable seeds for autumn sowing, and also insecticides, chemicals, flower pots and numerous other horticultural sundries.

THE catalogue sent by Messrs. Edmondson Bros., Dublin, entitled Bulbs and Flower Roots for Autumn, 1911, is of a particularly handy size. It is arranged alphabetically throughout and deals with all the most popular bulbs and roots for present planting. Gladioli are listed in variety, also the choicest varieties of double and single Hyacinths in separate colours. Their collection of Tulips is a long one and contains all the good standard varieties, while Narcissi are also well represented. Accompanying the catalogue is a leaflet dealing with the cultivation of bulbs in ornamental bowls—a method of growing bulbs particularly suitable for town dwellers. The firm supplies bowls specially made for the purpose, suitable bulbs, and also fibre compost, which is the best rooting medium for bulbs grown in this manner. Daffodils, Hyacinths, Tulips, Snowdrops, Crocus and several other bulbous plants may, without much trouble, be grown in bowls.

MESSRS. WEBB & SONS, LTD., Wordsley, Stour bridge. A well illustrated catalogue entitled Webb's Bulbs for 1914 is to hand from this well known firm. As might be expected, the list contains many good things, the varieties of Hyacinths stocked being numerous. Hyacinths are especially popular for exhibition, and the sorts most suitable for this purpose are distinctly marked. All the leading Daffodils are stocked, those most suitable for forcing being listed by themselves. Tulips are becoming more popular every year, and this firm's collection comprises all the leading sorts of the several sections, Darwins, Parrot Tulips, &c. Among the numerous other plants we notice Gloxinias, Ixias, Gladioli, various Lilies, Amaryllis and a host of other good things. At the end of the list is a selection of flowering plants, the colour of the flowers and time of flowering being placed after each. Few climbing plants are so popular as the Clematis, and here we find a well selected list of the best varieties.

H. CANNELL & SONS, Eynsford, Kent, send a copy of their 1914 Bulb List. Several illustrations are given of Daffodils and Hyacinths growing in ornamental bowls—a method of indoor gardening which is becoming very popular. They supply bowls and vases for this purpose as well as the bulbs, and also specially prepared fibre compost, which is the best rooting medium for the bulbs. Hyacinths, Tulips, Narcissi are listed in variety, as also are numerous other bulbs such as Scillas, Muscari, Freesias, Lily of the Valley, &c. On the last page we notice an illustration of the Winter Aconite (Eranthis hyemalis), one of our earliest plants to bloom, and one which we cannot have too much. The Spiraeas are quite invaluable for winter and spring decoration of conservatories, but to get the best results the improved varieties must be obtained: Queen Alexandra, Gladstone and Peach Blossom form a trio hard to beat.

YOUNG & CO. HATHERLEY, CHELTENHAM

Perpetual Carnation Specialists

Please send for our Special Catalogue of Perpetual Carnations for Bedding Out-of-Doors, just issued, post free.

Thompson & Morgan's far-famed Seeds & Plants

Revised CATALOGUES for 1914 free on application.

The high quality of our FLOWER AND VEGETABLE SEEDS is now universally recognised, and our CATALOGUE—really a book of reference on hardy flowers—describes over 3,000 different kinds, many of them not obtainable elsewhere.

Our HARDY PLANTS, mostly Alpine and Herbaceous, are strong, fibrous rooted stuff, in all the newest and best varieties, at moderate prices

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Do it Effectively and Use

NICOTICIDE

Fumigant

1 pint for
½ pint for
6 oz. for
4 oz. for
2 oz. for



Feet	Each	Carriage Paid
40,000	15/-	
20,000	7/6	
12,000	4/6	
8,000	3/-	
4,000	1/8	

NICOTICIDE FUMIGATORS, 1/- each for 5,000 cubic feet
NICOTICIDE

PLANT SPRAY

is very effective where it is not convenient to fumigate. We advise you to try it. It will also be useful as a Winter Dressing for Peaches, &c.
½ pint 1/2; Pint, 2/-; quart, 3/6; ½ gall., 5/-; gallon, 10/-.
Carriage Paid. Ask your Seedsmen for it.

LAWN SAND

entirely eradicates Daisies, Weeds, Moss, &c., besides stimulating the Grass

28 lbs. will dress 100 sq. yds. 6d., 1s., and 2s. 6d. Tins:
½ cwt., 6s.; ¼ cwt., 11s.; 1 cwt., 20s. Carriage Paid.

WORM POWDER

a certain remedy for removing Worms and clearing Worm Casts.
Use ½ lb. to the sq. yd. Simply sprinkle fairly thickly on the Grass and water copiously.

14 lbs	½ cwt.	1 cwt.	5 cwt.	1 ton	2 ton
3/-	5	7/6	12/6	£3	£5 10
					£10 10

Use also GOW'S TOBACCO POWDER & QUASSIA EXTRACT
Ask your Seedsmen for the above and refuse all imitations

HUNTER & GOW, Ltd. 31 Thomas Street, LIVERPOOL

THOMSON'S CELEBRATED MANURES

are a safe and simple guide to garden

success, producing vigorous, healthy fruitful growth. They are the result of many years' practical experience in gardening. For all garden

crops **Fruitbearing, Foliage and Flowering plants, Vegetables, Lawns &c., &c.,** our

Vine, Plant and Vegetable Manure

is unrivalled; as a stimulant for pot plants during the growing season our **Special**

Chrysanthemum & Topping Manure is excellent— are indispensable in your garden

Ask Your Seedsmen for full price lists pamphlets, &c., they are stocked everywhere

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“NIQUAS”

(NON-POISONOUS)

IMPROVED

A Concentrated Extract of Quassia, combined with other valuable ingredients, forming a cheap, safe, and effective Insecticide for syringing and dipping. It destroys all Insect Pests infesting Trees and Plants, whilst no possible injury to vegetation can result from its use. It can be applied with syringe or pump, or used for dipping.

PRICES—Half-pint, 1/-; pint, 1/6; quart, 2/6; half-gallon, 4/-; gallon, 7/6; five gallons, 25/-; ten gallons, 45/-
1 gallon sufficient for 80 gallons of water.

STANDEN'S MANURE

(Established over 35 Years)

Exceeds all others in General Fertilising Properties and Staying Powers

Analysis on Application

Sold in Tins, 1/-, 2/6, 5/6 each; and in Kegs, well secured, to prevent loss through exposure, 28 lbs., 8/6; 56 lbs., 13/6; 112 lbs., 22/6

CORRY'S SPECIAL

Chrysanthemum Manure

Sold in Tins, 1/-, 2/6, 5/6, and Bags, ½ cwt., 10/6; ¼ cwt., 18/-;
1 cwt., 32/-

For Fumigating in Greenhouses.

“LETHORION”

Improved Metal Cones

Registered No. 62,597

To destroy Insect Pests. The Candle attached to each Cone only needs lighting, and there is no further trouble. They are most efficacious.

No. 1. For frames and “lean-to's” up to 1,000 cubic feet. Price, 6d. each.

No. 2. For small greenhouses up to 1,500 cubic feet. Price, 8d. each.

No. 3. For a well secured house of 2,000 to 2,500 cubic feet. Price, 1/- each.

Fowler's Lawn Sand

This preparation is for destroying Daisies and other weeds on lawns, and at the same time stimulating the growth of the grass. If one tin is tried as a sample, its value will be at once appreciated. Sales are largely increasing.

Tins, 1/-, 2/6, and 5/- each; Kegs, ½ cwt., 8/6; ¼ cwt., 16/-;
1 cwt., 30/-

ELLIOTT'S

‘Summer Cloud’ Shading

Registered Trade Mark No. 14,629.

(The only genuine original and improved article)

For Greenhouses. A pleasant green shade is given to the glass. In packets, 1/- for 100 feet of glass, and 2/6 each for 200 feet.

Sole Manufacturers:

CORRY & CO., Ltd.
LONDON

SOLD BY ALL NURSERYMEN AND SEEDSMEN

MESSRS. ANT. ROOZEN & SON, Overveen, Haarlem, send a copy of their autumn catalogue of Bulbs and Roots for 1911. Their catalogue, as usual, is full of interest, containing all the usual popular bulbs for forcing and bedding, giving good lists of Hyacinths, Tulips, and Daffodils and Irises, besides these there are many other beautiful, but little known, bulbs which find a place in the list. The plant list is varied and extensive, containing valuable plants for the border and some for the rockery. The catalogue may be obtained post free on application to Messrs. Mertens & Co., 3 Cross Lane, St. Mary-at-Hill, London, E.C.

Packing of Apples

THE Board of Agriculture and Fisheries have for some time been in communication with a number of representatives of Fruit Buyers' Associations in order to ascertain the views of the trade with regard to the packing of home grown apples. The Board think it desirable that such information as they have been able to obtain should be brought to the notice of fruit growers.

NET WEIGHT OF FRUIT IN EACH PACKAGE TO BE DECLARED.—It appears that the point to which retail fruit dealers attach most importance is that every package should bear a tally or label with the net weight or count declared. The object of this requirement is to give some security as to the amount of the goods he is purchasing. It is said to be impossible under existing conditions to estimate the amount with sufficient accuracy for the purposes of retail trade. The difficulty of complying strictly with this requirement is not under-estimated, but the views of the trade in the matter are so strong and so unanimous that it seems clear that it would be to the advantage of any grower who was in a position to do so to indicate, in the manner suggested, the net weight of packages of fruit sent to market.

INITIALS OR MARK OF GROWER TO APPEAR ON PACKAGES.—Another point on which there appears to be little or no difference of opinion among buyers is that the initials of the grower or some distinguishing mark should appear on the package. The object in view is to facilitate the selection for purchase of apples consigned by growers who avoid the practice of "topping." It is alleged that much loss and inconvenience is occasioned to retail buyers of fruit by this practice. There is no doubt that unmarked packages of fruit are in many markets viewed by buyers with a good deal of suspicion, and that a grower who can affix to his produce a mark which will be taken by the retail dealers attending the market as a guarantee that the fruit is fairly packed, stands a much better chance than others of meeting with a ready sale. The practice of "topping" not only defrauds the buyer by leading him to pay a higher price for an article than it is worth, but puts him to great inconvenience because he finds himself with a short supply of apples of the class he requires to meet the demands of his particular circle of customers, and at the same time has left on his hands a certain quantity of inferior apples for which he has no use, although in the hands of some other retailer they might have been disposed of without difficulty.

STATEMENT OF VARIETY AND APPROXIMATE DIAMETER.—There is also some evidence that preference would be given by purchasers to packages with labels stating, in addition to the net weight, the variety of the apples, and their approximate diameter.

The inquiries and correspondence relate specifically to home-grown apples, but it is believed that the first two of the above requirements apply equally to all home-grown fruit.—*The Journal of the Board of Agriculture.*

Horticulture at Panama-Pacific International Exposition.

HORTICULTURISTS will be privileged to enter a rich treasure house if they visit the Panama-Pacific International Exposition, which opens at San Francisco on February 20, 1915. Not only will they see some of the world's fairest products, but they will have an opportunity of inspecting species which have only just commenced their mundane existence.

The department of horticulture is under the complete direction of Mr. George A. Dennison, who is a horticulturist and floriculturist of eminence.

The showing under this heading at the exposition will comprise many features of especial interest to Englishmen and Australasians.

The frostless climate of California, which enables plant life to attain the highest perfection of growth, will give the floricultural exhibit a distinction and beauty it has not been possible to secure at other expositions where the seasons have been short and the winters severe. New creations and heretofore unexhibited varieties will form a unique and interesting feature, such as has never before been assembled in one exhibit. Leading growers and nurserymen all over the world have already signified their intention of participation in the general display as well as in the Rose contest. The Exposition Company offers as a trophy a £200 cup to the originator of the finest new seedling Rose which has never before been exhibited. Growers of rare greenhouse plants and exhibitors from tropical countries will assemble in the conservatory section a wealth of unrivalled exotic beauty.

The Palace of Horticulture now being constructed is the most magnificent building of the kind in which Horticulture has been housed at any exposition. It will be crowned by the largest glass dome ever erected. The palace will be as prominent in the eyes of the people at night as during the daytime by reason of the scheme for its illumination.

Among the notable exhibits which are promised are totally new varieties of rhubarb and Sweet Pea, both being produced by California gardeners. The rhubarb stands more than a yard high and spreads in double stalks into a bush six feet in diameter. The new variety of Sweet Pea is extraordinary for its exceptional length of stem, which is two or three feet long. Another characteristic of this Pea is that it is not an annual, but a perennial. A bed of these elongated blooms will be in full colour on the opening day of the exposition, and will be as full of fresh bloom at the end of the year. They will no more fade than will the green of living ivy. The new Sweet Pea

is the work of Anton Zvolanek and the rhubarb owes its right to life to Mr. Wagner, of Pasadena, Southern California. The new red Sunflower, originated by Professor and Mrs. Cockerell, of Colorado (introduced in England by Suttons), is certain to attract considerable attention. It is to illustrate the Mendelian theory of plant segregation. In Ventura, California, Mrs. Francis has originated the only double seeding double Petunia. Heretofore, fertilisation was always necessary because the double specimen never carried the seed vessel. Mr. Albert Etter has taken two forms of wild strawberries and originated a new kind called the Ettersberg form. It is a drought-resistant, and grows high up instead of on the ground. The originator will exhibit the parent berries and the offspring. The exhibit will be under the department of eugenics of the University of California.

There are three or four new varieties of peaches tending to overcome the disadvantages peaches now have in shipping. One man has originated a peach that is very late. Another produces a variety that is tougher of skin and excellent of shipment as well as having splendid pulp.

Some of the most famous of English florists have made arrangements for the presentation of the wonderful displays of gardening methods that have made the English country home notable everywhere. Kelway & Co., who designed the reconstructed ancient garden at Hampton Court Palace built by Cardinal Wolsey, will reproduce a model of the Palace and grounds at the exposition. Kelway's exhibit and those of Hugh

Dickson and Samuel McGredy, of England, two of the greatest Rose originators of the world, have already arrived. Perry's Hardy Plant Farm, Sutton's, John Waterer, and Sanders & Sons are practically certain to exhibit.

Practical Patriotism.

BACKING UP THE FIGHTING LINE.

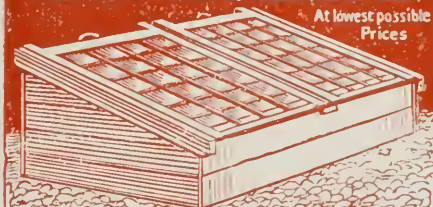
CANADIAN gifts still continue to pour in most munificently. Among recent donors is Mr. John C. Eaton, of Toronto, who has given £10,000 to the Dominion Government to purchase a battery of quick-firing machine guns, mounted on armoured trucks, for use with the Canadian contingent: he has also given his yacht and the use of his Marconi station at Toronto, which is the most powerful installation north of New York. The Province of Ontario has offered £100,000 to the Imperial Government to be used in the way considered best, and the Province of Nova Scotia has offered 100,000 tons of coal for use by the British Admiralty. Quebec has offered 4,000,000 lbs. of cheese: Prince Edward Island, 100,000 bushels of oats: Alberta, 500,000 bags of oats: in flour alone the gifts from Canada represents £600,000.

Of the many gifts now being organised for our troops in the field none, perhaps, will give the men greater pleasure than the 100,000 boxes of apples being sent by the British Columbia Fruit Growers' Association. One can imagine the

G. HAYWARD F.R.H.S.
CRYSTAL PALACE HORTICULTURAL WORKS
BROCKLEY ROAD LONDON S.E.
THE CHEAPEST AND BEST FIRM FOR GREENHOUSES. SEND FOR LIST POST FREE.



FROM £300 FROM £2150
ALL 21 OZ GLASS THROUGHOUT
Makers of all kinds of Greenhouses, Garden Frames.



THIS TWO-LIGHT FRAME made to standard size 6 ft. by 4 ft. Best materials, painted two coats, glazed with 21 oz. glass, ready for use.
PRICE 30/- packed free on Boat.



If you want a
BEAUTIFUL GARDEN

you must preserve your plants against all kinds of blight and garden pests.

ORDER

Awarded Gold Medal. **"KILPEST" TO-DAY** Awarded Gold Medal.

The best insecticide on the Market—and is non-poisonous
"KILPEST" EXTERMINATES Black and Green Fly, Red Spider, Thrip, Gooseberry Caterpillar, Mildew and Aphid Pests, &c., on Plants, Flowers, or Foliage. It cannot harm anything but insect life, and the most delicate plant cannot be injured by its use
2 ozs. "Kilpest" makes 1 Gall. Insecticide.
Prices—Pint, 1/6; Quart, 2/9; Gall. 5/-; 1/2-gall. 8/-
Also sold in tins 6d. each. Get a supply from your dealer to-day. If any difficulty is experienced in obtaining "Kilpest" send a postcard to

Sole Manufacturers
CLOUGH & FIRTH, Ltd.
BRIDGE MILLS, KNARESBOROUGH, YORKS.



begrimed British Tommy, after a hard day's campaigning, taking a rest and enjoying this juicy gift from the orchards of British Columbia. So long as the Commissariat Department is not interfered with, the British soldier is in no danger of the condition in which so many Germans are said to be at the present time.

The Hon. Adam Beck, of the Ontario Government, has presented 11 prize horses to the War Office.

Ulster Horticultural Society.

THE CHRYSANTHEMUM SHOW PUT OFF.

At a largely attended meeting of the Executive of the Ulster Horticultural Society it was unanimously decided to abandon the Chrysanthemum Show this year owing to the very unsettled state of the country. Although they recognise that it will cause disappointment to a great many they felt that it would be impossible to heartily enter into the undertaking with such a crisis hanging over the country, and we feel sure that their action in this matter will have the entire approval not only of the members of the Society, but of the public generally.

Royal Horticultural Society of Ireland.

THE monthly meeting of the council was held at the society's offices, 5 Molesworth Street, Dublin, on the 11th ult., Mr. H. P. Goodbody presiding. Consideration being given to the matter of next year's programme, it was unanimously resolved that three shows be held—viz., Spring, for which the schedules are in circulation; Autumn, and a Winter Fruit Show, the schedule committee being instructed to deal with the matter. A vote of condolence and sympathy was passed to Col. the Hon. C. F. Crichton, a vice-president of the society, on the loss of his son, killed in action. A cultural certificate was awarded to Mr. G. Bower, gardener to Stanley H. Cochrane, Esq., Woodbrook, Bray, for a collection of annuals and for Lord Grosvenor apples exhibited at the meeting; a F.C.C. being awarded to Messrs. Wm. Watson & Sons, the Clontarf Nurseries, for a collection of named new Collarette Dahlias. Mr. Clare, Rockingham Gardens (practical); Hon. Mrs. White, Knockatrina, Durrow; Mr. J. H. Welch, Dunruadh, Londonderry; and Mrs. and Miss O'Neill, Kinsealy Hall, Malahide, were elected members of the Society.

Dublin Wholesale Markets.

THE chief feature to record for the past month is the abundance of apples on all sides and the low prices, due in great measure to the war crisis and to the overplus of fruit of inferior quality. Apples of every grade are arriving in huge quantities, and the crop is reported from all parts of the country, especially the south, to be more plentiful than for many years past. Kilkenny, Waterford, and Tipperary are supplying the great bulk of well-graded, excellent fruit; whilst the suppliers around County Dublin and neighbourhood are forwarding a big percentage of windfalls and a

lot of inferior grades. It may be observed that the best prices are obtained for graded apples, marketed in trays or small boxes which hold from three to four dozen fruits. Selected Worcesters, Sudeleys, and Grenadiers marketed in this manner are awarded the highest prices; whilst apples in barrels are being sold very cheap in comparison, some of them not going at more than three or four shillings. Damsons are a record crop this season.

Cabbages have got a big drop during the month, and are now at normal prices once more. The showery weather is responsible a good deal for this desirable state of things. Brussels sprouts, of excellent quality, made their first appearance in the earlier part of the month, and are selling exceptionally well. French beans are practically over, and growers had to be satisfied with very reduced prices. Scarlet runners are now taking their place at similarly poor returns. White turnips, lettuce, carrots, parsley, marrows, and tomatoes are plentifully supplied, and prices remain unaltered.

PRICE LIST.—FRUIT.		From	To
		s. d.	s. d.
Apples—			
Grenadier	per barrel	7 0	12 0
Cooking	per bushel	1 6	3 6
„	per float	1 3	2 0
Selected	per doz.	0 6	0 10
Lady Sudeley	„	0 8	1 4
Worcester			
Pearmain	„	0 6	1 0
Peasgood's	„	0 10	1 0
Blackberries	per tray (6 lbs.)	0 9	1 0
Damsons	per float	1 6	2 0
Grapes (black)	per lb.	1 0	1 6
Melons	each	1 6	2 6
Pears—			
William's	per doz.	0 10	1 2
Fertility	„	0 6	1 0
Louise Bonne			
of Jersey	„	0 6	0 10
Plums	per half bushel	1 6	2 6
VEGETABLES.			
Cabbages—			
Yorks	per large load	12 0	17 0
„	per small load	4 0	9 0
Brussels			
Sprouts	per float	2 0	3 0
Beans—			
Kidney	per tray	0 4	0 10
Scarlet			
Runner	„	0 4	0 8
Cauliflowers	per doz.	1 0	1 8
Carrots	per doz. bunches	0 6	0 8
Celery	per doz.	1 9	2 0
Cucumbers	„	1 0	1 6
Lettuce	„	0 4	0 6
Onions	per bunch	1 0	1 2
Parsley	per tray	0 2	0 3
Tomatoes	per lb.	0 2	0 3
Turnips (white)	per bunch	0 4	0 6
Marrows	per doz.	1 0	1 6

FLOWERS.			
Asters	per doz. bunches	0 6	0 8
Chrysanthemums	„ „	0 6	1 0
Helianthus	„ „	0 1	0 8



A plot of one-year and two-year Apples at Watson's Nurseries.

FRUIT TREES.—On the left of the photograph here shown is a plot of Maiden (i.e., one-year) trees commencing with 14,000 Bramley's Seedling apples, followed by other popular sorts in proportionate numbers, while two-year-old apples will be observed on the right.

Besides the usual stock at Clontarf Nurseries, there are at Messrs. Watson's Killiney grounds over 70,000 young fruit trees of all varieties. They are in perfect condition of health and vigour, a sight to please the most expert and fastidious eye. The plots have recently been inspected by various horticulturists, including some of the chief experts of the Department of Agriculture. They expressed keen satisfaction with the quality, form and condition of the trees, both for orchard and garden, the latter including trees trained for wall and espalier.

Messrs. Watson's up-to-date methods result in clean, healthy, well-ripened growth and a perfect root system. Better trees to plant, either for profit or pleasure, cannot be obtained. The prices will also be found to be right and fair. Special quotations per 100 or 1,000 will be given on receipt of particulars as to quantities and varieties required.

THE ROSES.—These occupy an important position, both at Clontarf and Killiney, and include all the newest varieties right up-to-date. Large numbers of the leading Hybrid Teas, such as "General McArthur," "Lady Pirrie," "Lyon-rose," "Madame Abel Chatenay," etc., are grown with the newest Gold Medal Roses, including "George Dickson," "Queen Mary," "Irish Fireflame," and many others.

Double the quantity of Roses has been grown this year in order to fill the demand for the firm's rose trees—a demand due not only to the strong and well-ripened specimens sold, but also to **Watson's Special Rose Discount**, particulars of which will be found on page 18 of new catalogue (post free).

ORNAMENTAL SHRUBS, Hedge Plants, Herbaceous Perennials, and general nursery goods are largely grown both at Clontarf and Killiney, and anyone interested is invited to inspect either nursery.

The Clontarf Nurseries are only fifteen minutes' tram journey from Nelson's Pillar, very convenient for inspection when in Dublin.

Catalogues and all information may be had on application to Wm. Watson and Sons, Ltd., Clontarf Nurseries, Dublin. Telephone: Clontarf 26.



View across a 20-acre plot of Nursery Stock at Watson's Killiney Branch Nurseries—looking North.

The above plate is from a photograph recently taken at Messrs. Watson's Killiney Branch Nurseries. The land is situated at the rear of Killiney Hill, with a very open exposure towards the Dublin Mountains, so that the entire stock is of the hardiest nature. The premises occupy 148 acres, and the development of the extensive area under nursery cultivation has placed at Messrs. Watson's disposal largely-increased numbers of Trees and Plants to select from. This must be to the benefit of Planters, both in value and quality.

The view here shown is necessarily vague because of the extent. Fruit Trees, Roses, and Shrubs occupy many acres. The double line of tripods in the distance are formed by 150 larch poles, on which are planted all the most desirable varieties of Wichuraiana and Pillar Roses. Alternating with a collection of flowering trees, such as Japanese Cherries, Almonds, and Crabs, these tripods of roses form the background to a border on each side of the first 500 feet of an avenue now being formed. One border (length, 500ft.) is planted with ornamental shrubs—no two groups alike—and a set of the latest novelties in Dwarf Polyantha Roses is included in small groups at intervals along the front. The opposite border of 500 feet is an herbaceous border, planted with Rock Plants on a stone edging. Both borders were planted in the spring of 1914, and are already proving of interest to visitors.

[For the convenience of intending visitors it might here be stated that the entrance is on the Church Road opposite Killiney Golf Links, $1\frac{1}{2}$ miles from Killiney Station and 2 miles from Glengageary Station, both on the Dublin and South Eastern Railway. Cars can be had at Killiney, but visitors will be met at Glengageary if due notice of the intended hour of arrival is sent to the head office at Clontarf.]

All postal communications should be addressed to headquarters, "Wm. Watson and Sons, Ltd., Clontarf Nurseries, Dublin," where they will be opened by a Principal.

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By order,

E. H. O'DOHERTY, Secretary.

Secretary's Office, Courthouse,
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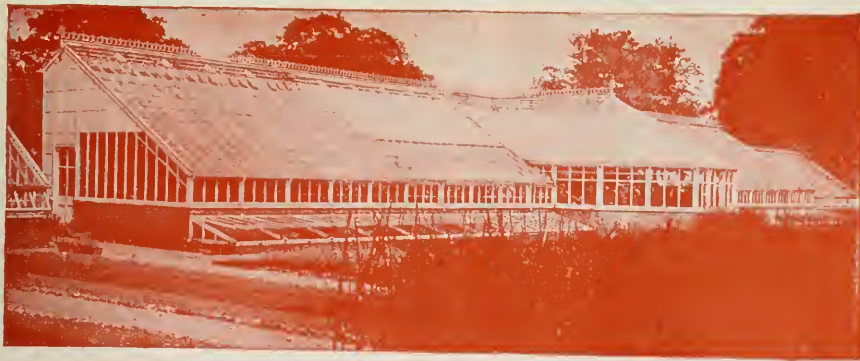
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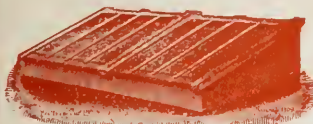
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10 DAME STREET ——— DUBLIN

Royal Horticultural Society of Ireland.

THE monthly meeting of the Council was held on the 9th ult. at the Society's offices, 5 Molesworth Street, Dublin, the following members being present, viz.:—Messrs. R. T. Harris, LL.D.; J. Wylie-Henderson; Alderman Bewley; W. F. Gunn, J.P.; D. L. Ramsay, J.P.; E. H. Walpole, G. M. Ross, M.A.; Captain Riall, D.L. (Vice-President); H. P. Goodbody, and Jas. J. McDonough, with Mr. E. D'Olier (Chairman) presiding. Regrets at inability to attend were received from Sir Frederick W. Moore, Canon Hayes, and Messrs. G. Watson and A. Campbell. A letter was read from Col. the Hon. C. F. Crichton acknowledging the Council's vote of condolence and sympathy on the death of his son (killed in action at the front). The revised schedule for the Autumn Show, 1915, as drafted by the schedule committee, including additional classes in the vegetable section, was submitted, considered and approved. On the matter of a winter fruit and flower show for 1915, which it has been decided to hold, Sir Frederick Moore's suggestion that it would not be advisable to prepare a definite schedule for this show until it could be ascertained what financial support in the way of special prizes it would be possible to obtain—was acted on, this particular schedule to be deferred for the immediate present. A fine display of Dahlias and Michaelmas Daisies, contributed respectively by Messrs. Chas. Ramsay & Sons, from the Royal Nurseries, Ballsbridge, and Messrs. Wm. Watson & Sons, the Nurseries, Clontarf, received Very Highly Commended for the superior excellence of the varieties shown, a vote of thanks being passed to the contributors.

A Cultural Certificate and vote of thanks was passed to Captain Riall for grand specimens of Peasgood's Nonsuch apples from his gardens at Old Coma, Bray.

Co. Clare Horticultural Society.

AUTUMN SHOW OF FRUIT AND FARM PRODUCE.

THE Autumn Fruit and Farm Produce Show of the County Clare Horticultural Society was held on October 1st. There was a fair attendance, but it should have been much larger, for the show was an excellent one; indeed the show of the famous Clare apples was the best yet seen at these exhibitions. This show worthily upheld the reputation of Clare produce; the judges spoke in the highest terms of the quality, and we may here reproduce their special observations:—"An excellent exhibition, dessert fruit high quality and proper size and colour. Baking apple classes good, fruit generally sound and clear, of fair size and with little blemish. 'Collections of apples' first-rate, containing some of the best dishes in the show. Packing first-rate, on sound commercial lines and in advance of any packing seen before. We suggest that in the class for 'three boxes' the varieties be each different. From Carrigoran there was a very fine exhibit, one of the best in the show, with typical samples of various commendable varieties."

The Carrigoran stand referred to by the judges was a splendid one, showing over thirty dishes of the best known varieties of apples and pears of magnificent quality and rich colouring. Some of the apples were of huge proportions, especially Peasgood's Nonsuch, which weighed 1½ lbs., and of very fine quality. They were shown to the very best advantage by Mr. Barker, on whose care they reflected great credit, and were much admired.

The committee awarded a special silver medal for the stand.

The "Fitzwilliam A. Scott Prizes," presented by Lady Fitzgerald to perpetuate the memory of one who was the first to bring the super-excellent

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1 pint for
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NICOTICIDE FUMIGATORS, 1/- each for 5,000 cubic feet
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is very effective where it is not convenient to fumigate. We advise you to try it. It will also be useful as a Winter Dressing for Peaches, &c. 1/2 pint 1/2; Pint, 2/- quart 3/6; 1/2 gall., 5/-; gallon 10/-. Carriage Paid. Ask your Seedsmen for it.

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entirely eradicates Daisies, Weeds, Moss, &c., besides stimulating the Grass

28 lbs. will dress 100 sq. yds. 6d., 1s., and 2s. 6d. Tins: 1/2 cwt., 6s.; 1 cwt., 11s.; 1 cwt., 20s. Carriage Paid.

WORM POWDER

a certain remedy for removing Worms and clearing Worm Casts. Use 1/2 lb. to the sq. yd. Simply sprinkle fairly thickly on the Grass and water copiously.

14 lbs.	1 cwt.	1 cwt.	1 cwt.	5 cwt.	1 ton.	2 ton.
3/-	6	7/6	12/6	£3	£5 10	£10 10

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are a safe and simple guide to garden

success, producing vigorous, healthy fruitful growth. They are the result of many years' practical experience in gardening. For all garden

crops **Fruitbearing, Foliage and Flowering plants, Vegetables, Lawns &c., &c., our**

Vine, Plant and Vegetable Manure

is unrivalled; as a stimulant for pot plants during the growing season our **Special Chrysanthemum & Topdressing Manure** is excellent—they are both indispensable in your garden

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"NIQUAS"

(NON-POISONOUS)

IMPROVED

A Concentrated Extract of Quassia, combined with other valuable ingredients, forming a cheap, safe, and effective Insecticide for syringing and dipping. It destroys all Insect Pests infesting Trees and Plants, whilst no possible injury to vegetation can result from its use. It can be applied with syringe or pump, or used for dipping.

PRICES—Half-pint, 1/-; pint, 1/6; quart, 2/6; half-gallon, 4/-; gallon, 7/6; five gallons, 25/-; ten gallons, 45/-
1 gallon sufficient for 80 gallons of water.

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(Established over 35 Years)

Exceeds all others in General Fertilising Properties and Staying Powers

Analysis on Application

Sold in Tins, 1/-, 2/6, 5/6 each; and in Kegs, well secured, to prevent loss through exposure, 28 lbs., 8/6; 56 lbs., 13/6; 112 lbs., 22/6

CORRY'S SPECIAL

Chrysanthemum Manure

Sold in Tins, 1/-, 2/6, 5/6, and Bags, 1/2 cwt., 10/6; 1 cwt., 18/-; 1 cwt., 32/-

For Fumigating in Greenhouses.

"LETHORION"

Improved Metal Cones

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To destroy Insect Pests. The Candle attached to each Cone only needs lighting, and there is no further trouble. They are most efficacious.

No. 1. For frames and "leant-to's" up to 1,000 cubic feet. Price, 6d. each.

No. 2. For small greenhouses up to 1,500 cubic feet. Price, 8d. each.

No. 3. For a well secured house of 2,000 to 2,500 cubic feet. Price, 1/- each.

Fowler's Lawn Sand

This preparation is for destroying Daisies and other weeds on lawns, and at the same time stimulating the growth of the grass. If one tin is tried as a sample, its value will be at once appreciated. Sales are largely increasing.

Tins, 1/-, 2/6, and 5/6 each; Kegs, 1/2 cwt., 8/6; 1 cwt., 16/-; 1 cwt., 30/-

ELLIOTT'S

'Summer Cloud' Shading

Registered Trade Mark No. 14,629.

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For Greenhouses. A pleasant green shade is given to the glass

In packets, 1/- for 100 feet of glass, and 2/6 each for 300 feet.

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SOLD BY ALL NURSERYMEN AND SEEDSMEN

qualities of Clare apples before the country, were won, one appropriately enough, by one of the most successful rivals of the deceased gentleman in the past, Mrs. W. Coffey, with a box of Cox's Orange Pippin; the second by Miss Scott, with an entry of dessert apples, and the third by Mr. Enright, with a bushel of cooking apples. A fourth exhibitor from Tradaree was the winner in the "Bill Challenge Class," also generously presented by Lady Fitzgerald. The winning exhibit was sent in by Mrs. Frost, and consisted of three dishes of dessert apples in three varieties. Another special prize, presented by Mr. W. Coffey, was won by Miss Scott.

The arrangements throughout the day worked smoothly under the careful eye of the hon. sec., Rev. R. Scott, who really seemed ubiquitous, and to be "all over the show" at one and the same time.

PRIZE LIST—SECTION I.—Dessert Apples.—Allington Pippins—1st, Lord Inchiquin; 2nd, Mr. John Enright; 3rd, Mrs. W. Coffey; v.h.c., Mrs. G. U. Macnamara. Beauty of Bath—1st and 2nd withheld; 3rd, Mrs. Frost. Cox's Orange Pippin—1st, Miss Scott; 2nd, Major Hickman; 3rd, Mrs. Knox; v.h.c., Lord Inchiquin and Mrs. W. Coffey. Duchess of Oldenburg—1st, Major Hickman. Gascoigne's Scarlet—1st, Miss Scott; 2nd, Major Hickman; 3rd, Hon. Ed. O'Brien. James Grieve—1st, Miss Scott; 2nd, Mrs. W. Coffey; 3rd, Mrs. Frost. King of the Pippins—1st, Miss Scott; 2nd, Mr. R. J. Staepoole; 3rd, Mrs. Vere O'Brien; v.h.c., Mrs. W. Coffey. Lady Sudeley—1st, Mr. John Enright; 2nd, Mrs. Frost; 3rd, Mrs. W. Coffey. Ribston Pippin—1st, Mr. John Enright; 2nd, Mrs. Coffey; 3rd, Lord Inchiquin; v.h.c., Mrs. Vere O'Brien. Worcester Pearmain—1st, Mr. J. Enright; 2nd, Major Hickman; 3rd, Mrs. W. Coffey; v.h.c., Lord Inchiquin. Best dish of any other varieties—1st, Lord Inchiquin; 2nd, Mrs. W. Coffey; 3rd, Major Hickman; v.h.c., Major Hickman.

Cooking Apples.—Alfriston—1st, Lord Inchiquin; 2nd, Major Hickman; 3rd, Mrs. Coffey. Annie Elizabeth—1st, Lord Inchiquin; 2nd, Mrs. Frost. Bismarck—1st, Mr. John Enright; 2nd, Mr. B. Brennan; 3rd, Mrs. W. Coffey; v.h.c., Mrs. Frost. Blenheim Pippin—1st, Mr. John Enright; 2nd, Lord Inchiquin; 3rd, Mr. F. B. Henn; v.h.c., Major Hickman. Bramley's Seedling—1st, Mr. Enright; 2nd, Mrs. Frost; 3rd, Mr. B. Brennan; v.h.c., Mrs. W. Coffey. Cox's Pomona—1st, Major Hickman; 2nd, Mrs. Frost; 3rd, Lord Inchiquin. Domino—1st, Lord Inchiquin. Ecklinville Seedling—1st, Major Hickman; 2nd, Lord Inchiquin; 3rd, Mrs. G. U. Macnamara. Grenadier—1st, Lord Inchiquin; 2nd, Mr. Enright; 3rd, Mrs. Coffey. Lane's Prince Albert—1st, Mr. Enright; 2nd, Mrs. Coffey; 3rd, Major Hickman. Lord Derby—1st, Mr. Enright; 2nd, Mrs. G. U. Macnamara; 3rd, Lord Inchiquin. Lord Suffield—1st, withheld; 2nd, Major Hickman; 3rd, Lord Inchiquin. Mère de Menage—1st, Major Hickman; 2nd, Lord Inchiquin. Newtown Wonder—1st, Lord Inchiquin; 2nd, Mrs. Coffey. Peasgood's Nonsuch—1st, Mr. Enright; 2nd, Lord Inchiquin; 3rd, Mrs. Coffey; v.h.c., Miss Scott. Pott's Seedling—2nd, Mrs. W. Coffey. Warner's King—1st, Mr. Enright; 2nd, Mrs. Coffey. Best dish of any other variety—1st, Mrs. Coffey; 2nd, Major Hickman; 3rd, Miss Scott.

Pears.—Beurré Diel—1st, Lord Inchiquin. Beurré d'Amant—1st, Mr. R. J. Staepoole. Caillae—1st, Mrs. Vere O'Brien. Doyenné du Comice—1st, Mr. R. J. Staepoole; 2nd, Lord

Inchiquin; 3rd, Colonel J. W. Macnamara. Durondeu—1st, Lord Inchiquin. Marie Louise—1st, Lord Inchiquin; 2nd, Mrs. Vere O'Brien; 3rd, Colonel Macnamara. Louise Bonne of Jersey—1st, Lord Inchiquin; 2nd, Mrs. Frost. Pitmaston Duchess—1st, Mrs. G. U. Macnamara; 2nd, Mr. Staepoole; 3rd, Mrs. Frost. Williams' Bon Chrétien—1st, Mr. Staepoole; 2nd, Mrs. W. Coffey; 3rd, Major Hickman. Best dish of any other variety—1st, Lord Inchiquin; 2nd, Colonel Macnamara; 3rd, Major Hickman.

Apples.—Best half bushel of dessert apples—quality of fruit and neatness of apples to be equally considered—1st, Miss Scott; 2nd, Mrs. Coffey; 3rd, Mr. Enright. Most tastefully and securely packed two dozen of cooking apples—1st, Mr. Enright; 2nd, Mrs. Coffey; 3rd, Lord Inchiquin and Mrs. Frost. Most tastefully and securely-packed one dozen of dessert apples—1st, Miss Scott; 2nd, Lord Inchiquin; 3rd, Mr. Coffey. Best ten dishes, six cooking and four dessert varieties—1st, Mrs. Coffey; 2nd, Mrs. Frost; 3rd, Major Hickman; v.h.c., Lord Inchiquin. Best five dishes of apples, grown by *bona fide* occupier of union district cottage—1st, Mr. M. Reidy; 2nd, Mr. Thos. O'Brien.

THE FITZWILLIAM-SCOTT MEMORIAL PRIZES.—Presented by Lady Fitzgerald, for the encouragement of commercial fruit growing. Best graded and most tastefully packed one dozen box of Cox's Orange Pippin—1st, Mrs. Coffey; 2nd, Miss Scott; 3rd, Mr. J. Enright. Best half bushel of dessert apples, quality of fruit, grading and packing considered—1st, Miss Scott; 2nd, Mr. Enright; 3rd, Mrs. Coffey. Best bushel of cooking apples, quality of fruit, grading and packing to be considered—1st, Mr. Enright; 2nd, Mrs. Coffey; 3rd, Miss Scott.

Catalogues.

WE have before us a copy of the Autumn 1914 Catalogue issued by Messrs. Wm. Power & Co., 25-26 King Street, Waterford. It is mainly concerned with bulbs and bulbous plants suitable for present planting, and contains many good things. Hyacinths are well catered for, and are offered in many named varieties, while the popular Tulip is also listed in large variety. A somewhat short, but extremely well-selected, collection of Narcissus is offered, and amongst those we notice several of the newer varieties, such as Glory of Noordwijk, King Alfred, Wear-dale Perfection, &c., listed at reasonable prices, considering the length of time they are in cultivation. Amongst the miscellaneous bulbs offered we notice Chionodoxas, Scillas, Iris, Anemones, and hosts of other things suitable for every garden, large or small. Nor are plants suitable for forcing omitted, for *Dielytra spectabilis*, Lily of the Valley, *Spiræas*, *Lilium Harrisii*, and several other bulbous-rooted subjects which lend themselves to this form of treatment, are included. Short lists of Herbaceous Plants, Climbing Plants, as well as lists of garden requisites of every description, labels, manures, &c., are given.

"HOLLAND IN IRELAND," 1914, is the title of the well printed catalogue sent out by the well-known Irish firm, MESSRS. HOGG & ROBERTSON, LTD., 22 Mary Street, Dublin. Their Bulb Farm is situated at Rush, and here are grown, with the exception of Hyacinths, all the sorts of bulbs which are grown in Holland. Their collection of Daffodils is a singularly comprehensive one, in-

cluding many new and choice varieties as well as those in general cultivation. The Daffodils are listed in their sections, Trumpets, Incomparabilis, Barri, Leedsii, &c., the distinguishing characters of each section being given at the head. Tulips succeed splendidly in the sandy soil at Rush, and the selection stocked is one of the largest in Britain. Early Singles, Early and Late Doubles, Darwins, and Cottage Tulips are all strongly represented, and we notice many of the Tulip species are offered. Hyacinths, Freesias, Ixias, Irises, Muscaris, and Liliums are all offered in variety, and at the end of the catalogue numerous miscellaneous bulbs and roots are listed. In a prefatory note the firm calls attention to the fact that the prices of their bulbs are fixed on a similar level with those of the half-dozen first-class Dutch houses which supply Dutch bulbs to the public of Great Britain.

THE 1914 Bulb Catalogue sent out by SIR JAMES W. MACKEY, LTD., 23 Upper Sackville Street, Dublin, is a very well printed and copiously illustrated one. The paper used in the catalogue is of good quality, so that many of the illustrations stand out very clearly. Details are given on growing bulbs in bowls, and besides stocking suitable bulbs, the firm offers bowls of many patterns, including several unique designs. Daffodils, Tulips, Hyacinths and Gladiolus are listed in great variety, while their collection of Lilies and Irises is an extremely varied one. An illustration of Anemone blanda reminds us that this is a beautiful spring flowering plant for the rock garden, while the variety blanda scythnica is even more beautiful. Among the miscellaneous bulbs we notice Tritelia uniflora, Erythroniums, Fritillarias, and many others which should be found in every garden large or small.

MESSRS. WM. WATSON & SONS, LTD., Clontarf Nurseries, Dublin, send a copy of their current catalogue of "Real Border Carnations." This firm makes a speciality of Border Carnations, and for exhibits of cut blooms have been awarded many gold and silver medals and prizes at exhibitions in Ireland, England and Scotland. Their collection consists of all the standard varieties and also numerous novelties, and it is to be noted that all those listed are grown out of doors. "American" or perpetual-flowering Tree Carnations are also grown by this firm, as also are Malmaisons and the lowly "Pinks." At the end of the catalogue several leaves are devoted to the "Culture of Garden Carnations." This describes in a most simple manner all the operations, such as layering, &c., connected with the culture of those charming flowers.

We have also received a copy of their autumn catalogue of Fruits, Roses and Shrubs, 1914-15. Their collection of apples includes all the varieties which have been found to succeed best in Ireland, and comprises such reliable standard sorts as Cox's Pomona, Bramley's Seedling, &c., each sort being well described. Cherries, pears, peaches, plums, and every other description of fruit are all stocked in considerable variety. The Rose planting season is just now with us, and here are to be found lengthy lists of Roses suitable either for exhibition, or for the decorating of the garden. Polyantha Rose, Wichurianas, &c., are all strongly represented, and for the information of the amateur details are given as to planting, manuring, &c., of these useful shrubs. Long lists of Evergreens, Conifers, Deciduous Trees and Shrubs stocked by this firm are also given, as well as Hardy Climbers and Wall Shrubs. At the end of the list Hedge plants and transplanted Forest Trees find a place.

G. HAYWARD F.R.H.S.
CRYSTAL PALACE HORTICULTURAL WORKS
BROCKLEY ROAD, LONDON S.E.
THE CHEAPEST AND BEST FIRM FOR
GREENHOUSES. SEND FOR LIST POST FREE.



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Makers of all kinds of Greenhouses, Garden Frames,
At lowest possible Prices



THIS TWO-LIGHT FRAME made to standard size 6 ft. by 4 ft. Best materials, painted two coats, glazed with 21 oz. glass, ready for use.
PRICE 30/- packed free on Boat.

KILPEST

If you want a
BEAUTIFUL GARDEN
you must preserve your plants against all kinds of blight and garden pests.

ORDER

Awarded	"KILPEST"	Awarded
Gold		Gold
Medal.	TO-DAY	Medal.

The best insecticide on the Market—and is non-poisonous.

"KILPEST" EXTERMINATES
Black and Green Fly, Red Spider, Thrip, Gooseberry Caterpillar, Mildew and Aphid Pests, &c., on Plants, Flowers, or Foliage. It cannot harm anything but insect life, and the most delicate plant cannot be injured by its use.

2 ozs. "Kilpest" makes 1 Gall. Insecticide.
Prices—Pint, 1 6s; Quart, 2 9s; 5-gall. 8s. Also sold in tins 6d. each. Get a supply from your dealer to-day. If any difficulty is experienced in obtaining "Kilpest" send a postcard to

Sole Manufacturers
CLOUGH & FIRTH, Ltd.
BRIDGE MILLS, KNARESBOROUGH, YORKS.



FROM FRANK CANT & Co., Braiswick Rose Gardens, Colchester, comes a copy of their 1914-1915 Rose Catalogue. Their list of Roses is an immense one, and comprises all the best Teas, Hybrids, Perpetuals, Singles, &c., all arranged alphabetically under their correct headings. Extremely good descriptions of the varieties are given, while an interesting feature is that of giving the raiser's name and also date of introduction of each variety. Several excellent plates of Roses in colour are included in the Catalogue, and should be valuable to the amateur in making a selection.

FROM MR. T. SMITH, Daisy Hill Nursery, Newry, comes two catalogues, one entitled "Trees and Shrubs, Climbing Plants, &c." and the other entitled "Newry Roses." As might be expected from a firm which has obtained a world-wide reputation for hardy plants, trees, &c., their collection is a most complete one, and comprises practically every tree in cultivation. The tree and shrub list is divided into convenient sections: "Peat-loving Shrubs," "Evergreens," "Deciduous Trees and Shrubs, Weeping Trees, Climbers, &c.," being all arranged alphabetically in separate lists. Many of the newly introduced Chinese shrubs, such as numerous species of Berberis and Cotoneaster, find a place in the catalogue, and we also notice many hybrid Brooms, Philadelphus, Deutzias, &c., listed, some of which have been raised in Newry, and all well worth a place in the garden or shrubbery. Conifers, Bamboos and Fruit Trees are also largely grown by this Irish firm. Their Rose Catalogue is also a most comprehensive one, and contains all the best of the new and old Roses. Besides the usual Teas, Hybrid Perpetuals, &c., long lists are given of Bourbons, China Roses, and the beautiful Penzance Briars, as well as those suitable for climbing or for pillars. Many of the Rose species are of great beauty and interest, and are strongly represented in the list, while many people will be delighted to see a copious list of old fashioned Roses stocked, including the "Old Celestial Rose" and many other old garden favourites.

THE Autumn Guide to hand from H. CANNELL & SONS, Eynsford, Kent, contains all those trees and plants which are suitable for autumn planting. Fruit trees of every description, Roses in large variety, and a long list of hardy perennial plants are included in the catalogue. Zonal Pelargoniums, so useful for pot culture, are stocked in all the leading varieties, while decorative and bedding Pelargoniums are also well represented. Short but select lists of Asters, Delphiniums, Pyrethrums and Violas are also given, as well as miscellaneous bulbs, Culinary Plants, &c.

Dublin Wholesale Markets.

For the past month the markets have been liberally supplied with fruit and vegetables; the supply of flowers, with the exception of Chrysanthemums, was unusually scarce.

Of the former apples were the principal commodity, and large quantities continue to be sold at a comparatively low price. Small lots of select apples still maintain the upperhand, and leave the biggest margin of profit to the grower. Large supplies of fair quality came from some of the northern counties, packed principally in barrels, and consequently returned very poor prices. Pears are more plentifully supplied at present, and prices somewhat better. Select

pears now receive their due share of the bidding, when put up for auction, and growers are well satisfied with the present prices. Blackberries still arrive in small quantities, and are selling at reduced prices.

Vegetables are now abundantly supplied, and the demand has been fairly active. York cabbages are now coming in plentifully, and, although the quality is good, prices rule exceptionally low. Savoys are also marketed in fair quantity, but buyers are slow to bid high for this vegetable at present, and consequently growers have reason to complain of the prices they receive for large loads of excellent quality. Cauliflowers are in good demand, and high prices are now paid for them. Brussels sprouts arrive in good quantities, and sales are not difficult to effect at profitable prices. The quality of this vegetable, together with the celery put up for auction, is not altogether up to the standard of previous years, which is due, no doubt, to the unusually dry spell of weather which has prevailed for the past number of weeks. All other vegetables—carrots, parsnips, swedes, lettuce, white turnips, beet, &c.—are now plentifully supplied, and cleared at much the same rates as the previous month.

		From		To	
		s.	d.	s.	d.
PRICE LIST—FRUIT.					
Apples	per barrel	5	6	10	0
"	per bushel	1	6	3	0
"	per float	1	0	2	3
"	per dozen	0	9	1	3
Pears (selected)	"	1	0	1	6
" (seconds)	"	0	8	1	0
Melons	each	1	0	2	3
Grapes (black)	per lb.	0	8	1	4
Plums	per half bushel	2	0	3	0
Blackberries	per tray (6 lbs.)	0	6	0	9

VEGETABLES.					
Cabbages (York)	per large load	10	0	18	0
"	per small load	6	0	9	0
" (Savoy)	per large load	5	0	9	0
Cauliflowers—					
(firsts)	per flasket	2	0	1	6
(seconds)	"	1	0	2	0
Brussels Sprouts	per float	2	0	2	9
Celery	per dozen	1	0	2	0
Carrots	per doz. bunches	0	6	0	10
Parsnips	"	0	8	0	8
Lettuce	per dozen	0	3	0	6
Cucumbers	"	1	0	1	9
Onions	per bag	1	0	5	0
Parsley	per tray	0	2	0	4
Mint	per doz. bunches	0	6	0	8
Thyme	"	3	0	5	0
Tomatoes	per lb.	0	2	0	4
Swedes	per cwt.	0	10	1	3
White Turnips	per bunch	0	2	0	5
Leeks	"	0	2	0	4
Marrows	per dozen	2	0	4	0
Beet	per bunch	0	2	0	4

FLOWERS.					
Chrysanthemums	per bunch	0	2	0	3½
"	per doz. blooms	0	9	1	6
Asters	per doz. bunches	0	6	0	9

J. K.



ANGLO-AMERICAN EXPOSITION.—The Special Jury of the Anglo-American Exposition have awarded a Diploma and Gold Medal to the "Abol" Non-Poisonous Insecticide, which has been extensively used in the grounds.

Dissection Section.

THE POPULARITY OF XL ALL SPECIALITIES increases every year. All gardeners proclaim that nothing equals these celebrated preparations.

XL ALL NICOTINE VAPORISING COMPOUND, the gardeners' favourite Fumigant, both Liquid and Cake.

XL ALL NICOTINE INSECTICIDE WASH for Syringing, Dipping, and Dressing Fruit Trees and Plants, Mealy Bug, Scale, &c., cannot exist where this is used.

XL ALL INSECTICIDE WASH B, (*sine* Nicotine), best non-poisonous Wash on the Market.

Other Preparations of great renown are **XL ALL** Caustic Winter Wash for dormant Fruit Trees and Bushes. **RICHARDS' WORM KILLER** for lawns, both non-poisonous. Don't forget to ask your Nurseryman or Seedsman for my small pink list. **G. H. RICHARDS**, Manufacturer, 234 Borough High Street, London, S.E.

LANDSCAPE GARDENING

DESIGNING, Laying out and Planting of New and Renovating of Old Gardens. The Making and Planting of Rock Gardens, Rockeries, Water and Bog Gardens, and Pergolas a Speciality.

Plans Prepared. Estimates Free.

RICHARD C. McM. SMYTH, F.R.H.S.
Mount Henry Dalkey, Co. Dublin

SANKEY'S FAMOUS GARDEN POTS
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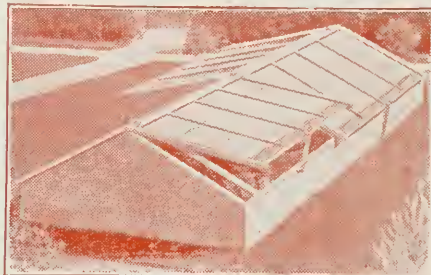
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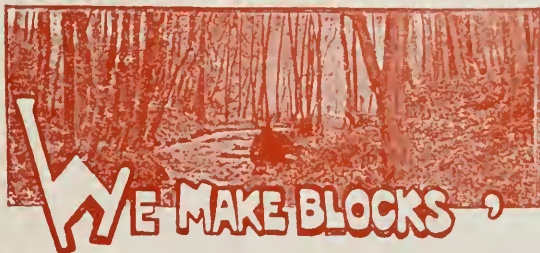
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Anglo-American Exposition, 1914.

HORTICULTURE, ARBORICULTURE AND FORESTRY SECTION.

THE Anglo-American Exposition, which will be held at Shepherd's Bush this year, has for its object the celebration in a fitting manner of the hundred years of peace and progress between the English-speaking peoples since the Treaty of Ghent in 1814. It has been felt that no more appropriate means could be adopted to commemorate these epoch-making events than to materialise in a magnificent joint display the vast gains which have accrued to mankind through this peaceful development of Great Britain and the United States of America during the past century.

As becomes an Exhibition, illustrative in the fullest possible sense of the activities of two great nations famous for the prominent part they have taken in the advancement of the gardening art in its varied aspects, demonstrations of both American and British horticulture are being organised on as comprehensive a scale as possible. From what has already been accomplished, it is believed that these demonstrations will be equally remarkable for their beauty, interest, and usefulness, and will prove a great source of attraction to visitors from both sides of the Atlantic.

This section of the Exposition is being organised by the Committee of Horticulture, Arboriculture and Forestry, which includes among its sixty members the foremost horticulturists, arboriculturists and forestry experts of

the present time, who have also had much experience in the organisation of exhibitions of the highest class. The Committee has already made considerable progress, and has formulated a scheme which there is good reason for believing will ensure a representation of horticulture, arboriculture and forestry worthy of the two great nations interested. Adequate provisions have been made for the display of rock and water gardening of the most varied character, which has of late years attained to so high a state of development, more especially in this country. A large area on the western side of the grounds will be placed at the disposal of those who are specially interested in this fascinating branch of the gardening art. Hardy herbaceous plants, now so popular with all classes of the flower-loving community, will not be less liberally provided for, as evidenced by the spacious Court of Progress having been allotted to them, to English formal gardens and Rhododendrons, and here the firms who devote special attention to these important classes of plants will show their taste in arrangement and skill in cultivation.

Roses, in view of their importance and popularity, will have much space devoted to them, and under the scheme the Elite Gardens will be almost wholly occupied by these fragrant, attractive flowers. Ornamental trees and shrubs, which have had so many valuable additions made to them, as the result of the explorations in Western China within recent years, should also constitute a great feature of much interest and usefulness. Indeed arrangements are being made for the representation of many other classes of

A HAPPY NEW YEAR

is assured if you purchase NOW our Special Collection of Twelve Perpetual Carnations in 5-inch pots. 15/- ONLY.

REMARKABLE VALUE. IDEAL NEW YEAR PRESENT. CATALOGUE FREE

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plants that can be successfully grown in the open during the summer months.

Forestry, which is now being recognised in this country as of immense importance both to land-owners and the general community, is receiving special attention, and the scheme that is now engaging the attention of a special committee of experts will, it is fully believed, ensure an adequate representation of the varied aspects of this great industry.

Six conferences on matters relating to horticulture and forestry will be held in the course of the summer, and, as promises of support have already been made by the leading societies specially identified with the subjects that will be dealt with, these should be highly successful. These conferences are: Perpetual Carnation Conference at the end of May; Hardy Plants Conference at the middle of June; Rose Conference at the end of June; Carnation and Sweet Pea Conference towards the end of July; Forestry Conference in August, and Fruit Conference in September.

Royal Horticultural Society.

THE annual general meeting of the society, held at 5 Molesworth Street, Dublin, on the 15th ult., at which, in the unavoidable absence of the President, Lord Ardilaun, Sir John G. Nutting, Bart., presided, ends the year's work. The 84th

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A Concentrated Extract of Quassia, combined with other valuable ingredients, forming a cheap, safe, and effective Insecticide for syringing and dipping. It destroys all Insect Pests infesting Trees and Plants, whilst no possible injury to vegetation can result from its use. It can be applied with syringe or pump, or used for dipping.

PRICES—Half-pint, 1/-; pint, 1/6; quart, 2/6; half-gallon, 4/-; gallon, 7/6; five gallons, 25/-; ten gallons, 40/-; 1 gallon sufficient for 80 gallons of water.

STANDEN'S MANURE

(Established over 35 Years)

Exceeds all others in General Fertilising Properties and Staying Powers

Analysis on Application

Sold in Tins, 1/-, 2/6, 5/6 each; and in Kegs, well secured, to prevent loss through exposure, 28 lbs., 7/6; 56 lbs., 12/6; 112 lbs., 20/-

CORRY'S SPECIAL Chrysanthemum Manure

Sold in Tins, 1/-, 2/6, 5/6, and Bags, 1/2 cwt., 10/6; 1 cwt., 18/-; 1 1/2 cwt., 32/-

For Fumigating in Greenhouses.

"LETHORION" Improved Metal Cones

Registered No. 62,597

To destroy Insect Pests. The Candle attached to each Cone only needs lighting, and there is no further trouble. They are most efficacious.

No. 1. For frames and "leant-to's" up to 1,000 cubic feet. Price, 6d. each.

No. 2. For small greenhouses up to 1,500 cubic feet. Price, 8d. each.

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Fowler's Lawn Sand

This preparation is for destroying Daisies and other weeds on lawns, and at the same time stimulating the growth of the grass. If one tin is tried as a sample, its value will be at once appreciated. Sales are largely increasing.

Tins, 1/-, 2/6, and 5/- each; Kegs, 1/2 cwt., 8/6; 1 cwt., 16/-; 1 1/2 cwt., 30/-

ELLIOTT'S 'Summer Cloud' Shading

Registered Trade Mark No. 14,629.

(The only genuine original and improved article)

For Greenhouses. A pleasant green shade is given to the glass. In packets, 1/- for 100 feet of glass, and 2/6 each for 300 feet.

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No.	size	Tin—1 pt. contains sufficient for	cubic ft. e. ch—s.	d.
No. 1	size Tin—1 pt.	40,000	15	0
No. 2	size Tin—1 pint	20,000	7	6
No. 3	size Bot.—6 oz.	12,000	4	6
No. 4	size Bot.—4 oz.	8,000	3	0
No. 4 1/2	size Bot.—2 oz., new size	4,000	1	8
No. 5	size Bot.—1 oz., "sample"	2,000	0	10

CARRIAGE PAID

Fumigating Lamps
1s. each, for 5,000 cubic feet

Nicoticide Plant Spray
1-pint 1/2 Pint 2/-
Quart 3/6 1-gal. 5/-
Gallon 10/- Carriage Paid

GOW'S LAWN SAND

DAISY ERADICATOR
28 lbs. (to dress 100 square yds.) 6/6,
1/2-cwt. 11/-, 1 cwt. keg 21/-



Carriage Paid

GOW'S LIQUID WEED KILLER

1 gallon, to make 51 gallons, in solution . . . 3/6
5 " " Drums Free " Carriage Paid . . . 16/-

Use Gow's Tobacco Powder and Quassia Extract
6d., 1/- and 2/6, decorated tins.

GOW'S SLUG DESTROYER And Combined Fertiliser

28 lbs. 4/6 1/2-cwt. 7/6 1 cwt. 11/6

All Carriage Paid Sample Tins, 6d and 1/-
In Decorated Tins.

ASK YOUR BREEDSMEN AND NURSEYMEN FOR IT.

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annual report, being in the hands of members, of which a good representation was present, was taken as read and duly adopted, and calls for little comment beyond that, with the statement of accounts submitted, it was generally considered satisfactory. Perhaps those most keenly interested in the society's work and welfare felt a little disappointment in finding the membership had not yet reached five hundred, but they have some reasons for hoping that this will be attained in the ensuing year, as with the publication of the "Record of Proceedings" after each show, copies of which are issued to members free, further inducement is afforded for supporting the society in this direction. A brief analysis of the year's finance discloses a much larger amount disbursed in cash prizes, more than £350 having been spent in this way, whilst the cost of medals awarded is practically double that of recent years. In spite of this the year's working shows a small balance to the good, which added to the balance shown previously brings the society's assets to £300. Grateful acknowledgments are made in the report to those who have by donations so considerably helped the prize funds, to the Royal Dublin Society and to the Department of Agriculture for grants in aid of, and for facilities afforded for, the spring and winter shows. Forecasting another year's work it is stated that the spring show will be held at Ballsbridge on similar lines to those of the last four years, the usual autumn show will be held during horse-show week, and a summer, or Rose show, will be held in July. On a ballot being taken for the vacant practical member's seat on the council, Mr. A. Campbell, St. Anne's Gardens, Clontarf, was declared as duly elected.

Winter Spraying of Fruit Trees.

THE following extracts are from the "Spraying Calendar," given by Professor Pickering, M.A., F.R.S., Director of the Woburn Experimental Fruit Farm, and F. V. Theobald, M.A., Vice-Principal, South Eastern Agricultural College, Wye, Kent, in their very useful handbook, "Fruit Trees and their Enemies." (Copies of this book can be had post free for 1s. 9d. each.)

"Apart from the consideration of the direct action of a winter wash in destroying various pests which are probably present, moss, lichen and dead bark must always accumulate, and the freer trees are kept from these the healthier they will be, and the less will be the opportunities afforded for insects to flourish on them."

"From January to March.—Spray tree with a caustic paraffin emulsion for cleansing them of dead bark, and destroying moss, lichen, mussel scale, small apple, erine moth, gooseberry and currant scale, gooseberry spider, currant shoot and fruit moth, pear leaf, blister mite, and possibly other insects."

Winter spraying is now resorted to by practically every up-to-date fruit grower. The formula most recommended for Winter Spraying Emulsion is as follows:—Soft soap, $\frac{1}{2}$ lb; paraffin (solar distillate), 5 pints; caustic soda, 2 to $2\frac{1}{2}$ lbs.; water, 9 $\frac{1}{2}$ gallons. The necessary articles for this and all other Spraying and Fumigating Mixtures can be had, with directions for mixing, from D. M. Watson, M.P.S., Horticultural Chemist, 61 South Great George's Street, Dublin. Phone, 1971.

SWEET PEAS

Exhibition Sorts. Per packet, 6d. Twelve Sorts for 5/-

Barbara	Elfrida Pearson	Melba
Dobbie's Cream	Florence Nightingale	Nettie Jenkins
Edrom Beauty	Mrs. Cuthbertson	Nubian
Hercules	Mrs. Hugh Dickson	Red Star
King Manoel	Scarlet Emperor	R. F. Felton
King White	Thomas Stevenson	The Squire
Loyalty	Vermilion Brilliant	Wedgewood

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GIANT SWEET PEAS

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BIJOU COLLECTION

Price 1/6 Post Free

Contains 10 Seeds of each of the following
12 finest varieties :—

Etta Dyke, white	Sunproof King, crimson
Clara Curtis, cream	Masterpiece, lavender
George Stark, scarlet	Queen of Norway, mauve
Countess Spencer, pink	Helen Grosvenor, orange
Mrs. Hardcastle Sykes	Elsie Herbert, white and
blush.	pink.
John Ingman, carmine- rose.	Flora Norton Spencer, blue.

Mackey's

POPULAR COLLECTION

Price 1/9 Post Free

Contains 30 seeds of each of the following
12 beautiful varieties :—

Dorothy Eckford, white	Queen Alexandra, scarlet
Princess Victoria, pink	Lord Nelson, deep blue
Constance Oliver, cream	Helen Lewis, orange
King Edward Spencer, crimson.	Evelyn Hemus, cream and pink
Asta Ohn, rosy-lavender	Gladys Unwin, pink
Tennant Spencer, mauve	Marjorie Willis, rose



SPLENDID MIXTURE, SPENCER AND GRANDIFLORA VARIETIES.

Per Quart, 6/6; Pint, 3/6; Half Pint, 1/9. Per Packet,
1/-, 6d., 3d., Post Free.

UP-TO-DATE EXHIBITION VARIETIES

Agricola. Lovely blush suffused rosy lilac. *Per packet, 6d.*

Barbara. A beautiful salmon-orange self, prettily waved; a grand flower. *Per packet, 1s.*

Dobbie's Cream. Deep cream or primrose; fine large flower, probably the best of its colour. *Per packet, 6d. and 1s.*

Decorator. Beautiful soft cherry-red shaded salmon. *Per packet, 6d.*

Earl Spencer. Beautiful salmon-orange, waved. *Per packet, 3d., 6d. and 1s.*

Edrom Beauty. Lovely large orange-pink flower; an improved Helen Lewis. *Per packet, 6d. and 1s.*

Helen Grosvenor. Rich deep orange waved. *Per packet, 3d., 6d. and 1s.*

Illuminator (Novelty, 1914). Salmon-orange suffused rich cerise-pink; under artificial light a glowing orange-scarlet. *Per packet (12 seeds), 6d.*

King Edward Spencer. Crimson-scarlet, waved. *Per packet, 3d. and 6d.*

King White (Novelty, 1914). The finest white yet introduced; immense waved pure white flowers, four to a stem usually. *Per packet, 6d. and 1s.*

Maud Holmes. A splendid crimson, waved; a first-class flower. *Per packet, 3d. and 6d.*

Melba. Beautifully waved salmon flower, slightly paler than Earl Spencer. *Per packet, 1s.*

Rosabelle. Glowing rose; a fine large and well-waved flower, larger than Marjorie Willis. *Per packet, 3d., 6d. and 1s.*

R. F. Felton. Lilac, shaded french-grey, a remarkably strong grower (seed scarce). *Per packet (10 seeds), 1s.*

Scarlet Emperor. One of the largest and brightest of the scarlets; of the true Spencer type. An extra strong grower; sunproof. *Per packet, 6d.*

Thomas Stevenson. Brilliant orange-scarlet, beautifully waved. Extra large and the best of this shade. *Per packet, 6d.*

True Lavender (Dobbie). A waved Lady Grisel Hamilton. *Per packet, 6d. and 1s.*

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GARDEN-SEED

MANUAL

Free on Application

Note.

THE PROGRESS OF AGRICULTURE IN NOVA SCOTIA.—During last year great progress was made in agriculture. An experimental fruit farm has been established at Kentville, a beautiful rural town in the heart of the great fruit growing district. Professor J. W. Crowe, of Guelph, has been appointed as director. The fruit growers of Nova Scotia expect good results from the experiments made on this farm. In March the Dominion Parliament voted £5,000 to enlarge the Nova Scotia Agricultural College. This work was necessary owing to the increasing number of students attending the long and short courses. This attendance has increased from 85 (seven years ago) to nearly 500. An assembly hall, 88 by 60 feet, has been erected. Two additional class-rooms have been added. A new horticultural building with greenhouses attached form part of the improvements. There is also an entomological department with a glasshouse attached where insects can be bred and studied at all times of the year. The farm has also been enlarged to the extent of 40 acres. Another advanced step is the establishment of "Illustrated Farms" in the agricultural centres, the objects of which are to promote the mutual interests of the farmers, to increase their knowledge of scientific farming, and generally to improve the conditions of country life. Co-operation among farmers has rapidly increased during the year. Twenty-nine fruit growers' associations have united in a central organisation which has been incorporated by the Legislature. The operations of this central body have been of great benefit to the fruit growers. In these and other ways the farmers of Nova Scotia have kept pace with all the improved methods of agriculture.

Catalogues.

AN extremely handsome and well got up seed catalogue comes from Messrs. Webb & Sons, Wordsley, Stourbridge, full of really beautiful illustrations. Garden Peas, for which this firm has a great name, come first, and besides a good collection of the well-known sorts there are novelties in both the early and late sections. Beans, Beet, Cauliflowers, Cabbage, Potatoes, and in fact all the well-known vegetables are represented by both new and old varieties, while some little-known kinds of vegetables are also to be found, and a page of information is devoted to the making and renovating of lawns. The list of flowers is a large one in the latter half of the catalogue, and finely illustrated. Greenhouse flowers raised from Webb's choice strains of seeds form a striking feature at many shows throughout the kingdom, while their annuals give a blaze of colour during the summer in many a garden. Such reliable firms give the greatest care in the growth, selection, cleaning and testing of their seeds so that a high standard of germination is assured. Free copies of the catalogue are given to customers, but the published price is 1s., post free.

Review.

THE December Journal of the Royal Horticultural Society of England is an interesting production. Prof. R. H. Biffen writes on "Investigations on the Control of Disease in Plants." Sir Everard Im Thurn writes on "The Coconut Palm." In some of the South Sea Islands this all-useful palm supplies the natives with most of their

DICKSON'S "HAWLMARK" SEEDS

are by general consent admitted to be the best for the soil and climate of Ireland. They are the produce of our own stock seeds, and at our extensive trial grounds every variety, before being sent out, is thoroughly tested; and exhaustive experiments are constantly being initiated and carried out with the object of still further improving our stocks.

Those who wish to grow the best crops should sow the best seeds, and we would point out that, all our seed crops being carefully grown and harvested under personal supervision, our seeds are of highest purity and germination.

We never part with our stock seeds, so that it is important to remember that our proprietary strains can only be obtained from us.

Before ordering your Supply for the Season it will pay you to look through our Catalogue, which will be sent gratis and post free

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HAWLMARK—61 DAWSON STREET, DUBLIN

wants, being food, drink, often clothing and building materials. Among the gardening articles are "Hints on Herbaceous Borders," by George Bunyard, and "Tuberous Begonias," by G. C. F. Langdon.

From the trials of violas, strawberries and tomatoes at Wisley one gets an idea of the worth of particular varieties. Four essays by Wisley students are printed separately, and include "Roses," by Alex. Dickson; "Fertilizers and Manures," by D. E. Nicholson; The Hardy Herbaceous Border," by J. O. Pritchard; "Insects Injurious to Fruit Trees," by G. F. Wilson.

Obituary.

MARTIN JOHN SUTTON, J.P., F.L.S.

WE regret to announce the death of Mr. Martin John Sutton, for many years the head of the firm of Messrs. Sutton & Sons, Reading. After a short illness Mr. Sutton died in London on December 14. Born at Reading in 1850, he was the eldest son of the late Mr. Martin Hope Sutton, who with his brother laid the foundations of the now world-known firm. Mr. Sutton entered the firm at the very early age of 16 years, and on reaching the age of 21 was taken into partnership by his father and uncle. In 1887 he became head of the firm, and remained in this position till a few years ago, when, knowing he was no longer a young

man, resigned in favour of his eldest son. Although no longer responsible for the management of the business, Mr. Sutton took a keen interest in the firm till the end. He also played a conspicuous part in the agricultural, educational and civic life of his native town.

The funeral took place in London on Wednesday, Dec. 17, and a memorial service was held on the same day at Grey Friars Church, Reading, attended by representatives of the many societies with which Mr. Sutton was a member.

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AT FACTORY PRICES

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By purchasing from us you save all retailers' profits. To convince you of the splendid value of these boots, a sample boot will be sent post paid on four days' free approval. If after personal examination

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No. 1420 is made with Finest Chrome Tanned Grain Hide Upper, waterproofed by special process which keeps them soft and pliable, fitted with watertight Bellows Tongue. The soles are of best

quality solid leather half an inch thick, and thoroughly water and damp-proof. Either nailed or unnailed soles. Slender and wide fittings. My factory price **14/6**. Quote No. 1420. Heel tips if desired free. Extra heavily nailed to meet customers wishes (not returnable) **6d.** extra. With toe plates **6d.** per pair extra. When writing for sample boot please give name of employer in token of good faith.

Gardeners' Catalogue Free

Every gardener should write for a copy of this interesting book, which not only lists "All British" Footwear and Clothing specially suitable for gardeners at this season, but is an invaluable means of saving money, as every article is listed at *factory prices*, thus saving you retailers' profits.

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For many years acknowledged to be the World's Best Pest Destroyer. Safe, Sure, and Reliable kill for ALL Garden Pests : : : :
 1 pint, 1/-; pint, 1/6; quart, 2/6; 1/2 gall., 4/-; gall., 7/6

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Specially Recommended by the **NATIONAL ROSE SOCIETY**

The most Economical and Efficient Hand Sprayers Vary Spray from fine to medium or coarse : : : :
 Highest Award at R.H.S. Trials : : : :

No 4 (1 x 14), **8/6**; No 5 (1 x 20), **10/6**; No 6 (1 1/2 x 20), **14/6**. Bends not included but charged **1/6** extra

"ABOL" SHADING

Far surpasses all other shadings for Greenhouses Conservatories, &c. Price 1/- per tin. Postage, **4d.** extra

"ABOL" WORM KILLER

The most EFFICACIOUS destroyer of earth-worms on Golf Greens, Tennis Courts, Garden Lawns, &c. Full particulars of all

NURSERYMEN, SEEDSMEN, FLORISTS & IRONMONGERS.



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24 Gold, Silver & Bronze Medals & Diplomas

Dublin Wholesale Markets.

Now that Christmas is at hand the marketing of all kinds of garden produce is briskly engaging the attention of all concerned in the trade, although there is nothing like the customary briskness experienced in preceding years at this busy season.

Cabbages are still remarkably scarce, but they show no appreciable rise from the usual prices which have prevailed during the month. Celery was sold in large quantities, and for good stuff handsome prices were obtained. Pot-herbs are in abundance, and are eagerly bought up for the festive season. The quantity and quality of the Brussels sprouts were well maintained, and the prices did not vary much from the previous month. Root-crops and other vegetables were well stocked, and met with a ready sale.

For the past month the price of apples has gone up considerably owing to the expensive and circuitous routes by which foreign apples have to be brought to the markets. During the past few weeks large consignments of home-grown apples—chiefly Bramley's Seedling—of superior quality, well graded and packed in barrels, bushel boxes and trays, were to be seen in the market, and were quickly sold at record prices. Evidently they have been held over for the Christmas season. This is encouraging to the Irish fruit grower. However, owing to the resumption of work at the ports, foreign and English fruits are now more plentiful than for some weeks past.

Flowers—particularly Chrysanthemums—in great variety were in abundance throughout the month, and were easily disposed of. Roman Hyacinths, Narcissi, and pot plants are in great demand at profitable prices. Greenery of all kinds—holly, ivy, arbutus, and mistletoe—is present in large quantities, and receive the eager attention of intending purchasers. The absence of berried holly is quite noticeable this season, which greatly detracts from its value and appearance.

PRICE LIST—FRUIT.		From	To
		s. d.	s. d.
Apples—			
Bramley's			
Seedlings	per barrel (1sts)	33 0	36 0
"	" (2nds)	16 0	32 0
"	per bushel	6 0	10 0
"	per dozen	1 9	2 6
Grapes—			
Alicantes	per B.	1 2	1 6
Colman's	"	1 6	2 0
Tomatoes	"	0 1	0 6

VEGETABLES.		From	From
		s. d.	s. d.
Cabbage—			
York	per load	16 0	20 0
"	per large load	21 0	32 0
Savoy	per load	18 0	35 0
Carrots	per doz. bunches	0 8	1 2
Cauliflowers	per flasket	1 0	6 0
Celery (white)	per bunch	1 8	2 6
" (pink)	"	1 0	1 6
Lettuce	per dozen	0 1	0 6
Onions	per bag	6 0	8 0
Parsley	per float	0 6	0 8
Parsnips	per doz. bunches	1 3	1 1
Swedes	per cwt.	0 10	1 0
Sprouts	per float	1 6	2 0
Scallions	per bunch	0 3	0 4
Leeks	per bunch	0 2	0 1
Thyme	per doz. bunches	5 0	7 6

FLOWERS.			
Chrysanthemums	per bunch	0 6	1 0
Arum Lilies	per dozen	1 8	2 6
Narcissi (paper			
white)	per doz. bunches	1 0	2 0
Holly (variegated)	per bunch	0 6	0 9
Ivy	per bunch	0 1	0 6
Mistletoe	per crate	14 0	18 0

J. D.

1914 New Volume IRISH GARDENING

THE new volume will sustain the old standard of excellence as to authoritative articles on both the practical and scientific side of gardening, but new features and new writers will be introduced during the course of the year. Every Irish gardener and every owner of any size garden in Ireland should obtain IRISH GARDENING (monthly) and read it! and having read it should preserve it for binding—it is worth it.

Last year's volume (1913) can be supplied bound in Green Cloth, 4/11 post free.

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CAUSTIC SODA, 98 per cent.
PEARL ASH, 75/80
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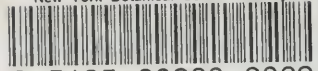
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